Middlebury

COLLEGE NEWS LETTER

SPRING 1976

Around the Hill

Women on Middlebury's Faculty

Marjorie Lamberti, whose promotion to Professor of History next July was announced this spring, will become the first woman member of Faculty with rank of full professor since 1947, when Clara Blanche Knapp, professor of Home Economics, retired. Miss Lamberti will be only the second woman ever to hold that rank at Middlebury. With her AB from Smith and her master's and doctorate from Yale, Prof. Lamberti joined the Faculty in 1964 as instructor in History. Announcement of her promotion sent us to the Archives to find out how many other women had served on Middlebury's faculty.

As noted in the anniversary issue, the first woman was appointed to the Faculty in 1909 when Rhoda M. White, PhD, was named assistant professor of Sociology—and Dean of Women (an appointment enabled by the gift by A. Barton Hepburn '71 of a Women's Professorship). The next three deans of women (1911-15) were also assistant professors—of Phys Ed and Art, of Fine Arts, and of English, respectively. The first of a series of assistant professors of Home Economics was named in 1911, but not until 1928 was any woman advanced to the rank of associate professor; in that year Ellen Wiley became associate professor of Mathematics and Marion Young '24 was made associate professor of Physical Education. (The rank of associate professor at Middlebury was established only in 1922). Only seven other women were to attain that rank in the next 48 years: three taught Phys Ed (Mary Rosevear, 1939; Mary Lick, 1962; and Joan Towne, 1974); the other four taught Spanish (Rose Martin, 1942), Home Economics (Ida Gibson, 1944), Classics (Ursula Heibges, 1971), or History (Marjorie Lamberti, 1971).

Clara Knapp, Middlebury's first woman full professor, was promoted to that rank in 1925.

In all, if our calculations are correct, there have been 146 women members of Faculty at Middlebury since 1909 with rank of lecturer or above: one professor, nine associate professors, 26 assistant professors, 80 instructors, and 29 lecturers. (Also uncounted members of the assistants- and associates-in-instruction.)

Nine Middlebury alumnae have served on the Faculty; in order of their appointment they are Eleanor S. Ross '95, Marion Young '24, Dorothy Slayton '23, Prudence Fish Bussey '22, Mary Bowles '17, Muriel Long '23, Marion Munford '32, Betsy Gleason '58, and Catherine Tepperman '68.

Professor Lamberti

Mellon Grant Assists Experimental Programs

A $230,000 grant from the Andrew W. Mellon Foundation will assist the College's funding of two experimental programs for faculty development—one a program for "teaching residencies", the other for junior-faculty leaves.

The new teaching residencies are analogous to medical internships: young scholars fresh out of graduate school will be offered two-year appointments in which they can gain teaching experience under supervision of mature teachers. Beginning next September, the College expects to appoint such teaching residents in Economics, Geography, History, and Psychology. Their teaching loads will be somewhat reduced to permit more time for research than is normally available to junior faculty. Because the appointments are for short terms, the College will retain flexibility in the assignment of teaching manpower to meet shifting enrollments in the several departments. This experimental program will be reviewed after four years and its effectiveness assessed.

The leave program for junior faculty is designed to allow junior faculty members, between their fifth and eighth years of teaching, to advance their scholarship prior to the review for tenure which occurs during the eighth year. The College hopes to grant three such half-year leaves, on average, in each of the next four academic years.

Professors in Transit

Three able and popular Middlebury teachers have recently moved to professorships at other schools; their fields, respectively, are Music, Geology and Geography.

Jeffrey Kurtzman, assistant professor of music since 1969, has been named assistant professor of Music at the Shepherd School of Music in Rice University (Houston). A popular expositor of composition, Jeff is remembered by the campus community for his extravagantly produced lecture a few years back, in the great hall of the Johnson Building, on the thematic structure of Beethoven's *Eroica*.

Peter Coney, who joined the Faculty in 1964 and was named professor of Geology last July, became professor of Geo-Science at the University of Arizona (Tucson) in January of this year. Mr. Coney has been working out details of continental-drift theory (see Winter '73 News Letter).

Vincent Malmstrom, professor of Geography, who came to Middlebury in 1956, was named professor of Geography at Dartmouth on January 1st. An enthusiastic and inspiring teacher in one of Middlebury's most popular departments, Mr. Malmstrom's pending departure occasioned considerable anguish among Geography majors last fall, particularly when the administration announced that he would not be replaced with another scholar of comparable authority and rank. When widespread student concern had been expressed, the president announced in January the appointment of a five-man committee "to study the place of Geography in the undergraduate curriculum" and to report within twelve months, after which the Educational Council will consider its recommenda-

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COLLEGE NEWS LETTER

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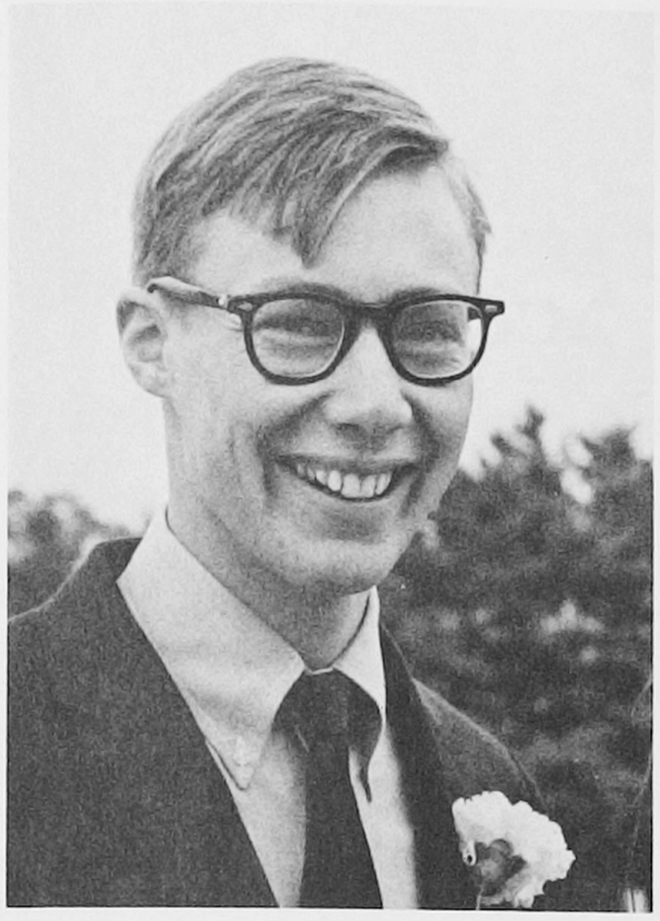
The Middlebury College News Letter is mailed without charge to all alumni and to all parents of students and recent graduates. Each alumnus is asked to write the Alumni Office when he has news concerning himself or another alumnus. And every reader who is about to move can save the College money by sending in a change-of-address card at the earliest possible date.



Attorney Bill Sessions '69, who led World of Law course, seen here in his senior year.

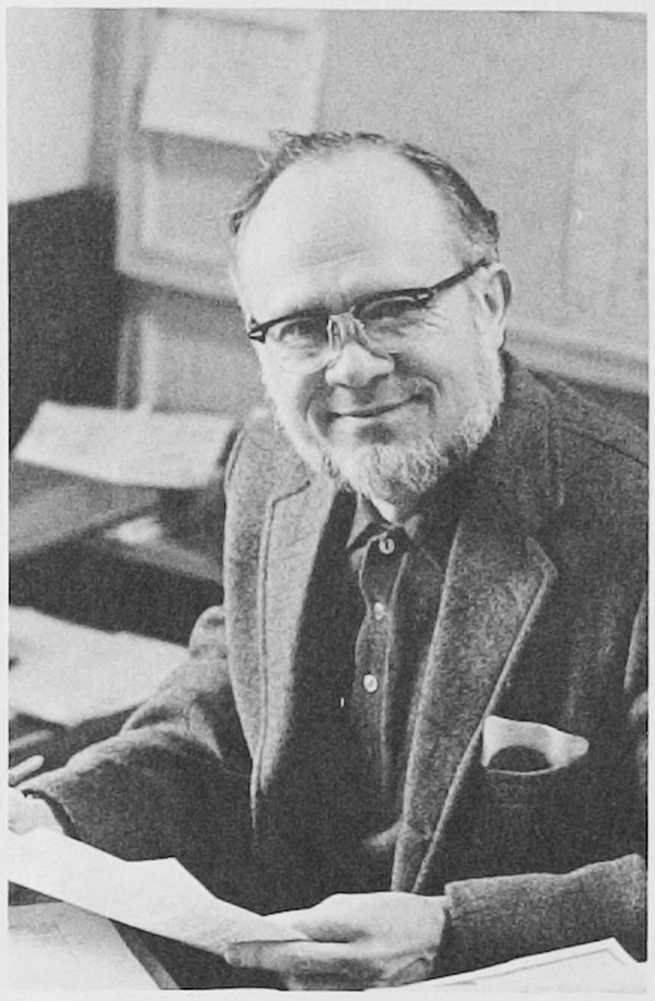
World of Business, The World of Medicine, and The World of Law. They brought to the campus for the first time an impressive number of practicing professionals in those three fields to give first-hand testimony on what they are doing, how it fits into the larger context of their profession, and how they view its satisfactions and problems. No less than 54 professional men and women volunteered their time and services to give Middlebury students a clearer picture of their work. Although one or two sessions were held in Burlington, the majority of the volunteers came to the campus—from offices as far as Cleveland and St. Louis. Twenty-two were members of Middlebury's family: 12 were alumni, seven were Middlebury parents, one was a trustee, and two were faculty wives. Five of the 54 were attorneys, each of whom took a portion of the 23 "World of Law" students into their offices as working interns. Besides interning at least 10 hours a week in a law office (all worked longer hours than that), these students heard 12 panel discussions in which a total of 23 lawyers—prosecutors, defense attorneys, public defenders, judges, attorney generals—explained some of the specifics of their profession.

The 18 students investigating the medical professions heard 17 specialists—hospital administrators, dentists, nurses, general practitioners, researchers, psychologists, pharmacists, public health officials, and others—explain their special functions and how they related to the total health-care-delivery system. Each student was required to design a health-care-delivery system for either a small rural community or a city of 2 million people, delineating personnel needs and estimating costs and how to meet them.

The 20 students of the business world organized themselves into four groups of five and each group prepared and presented a case study of a specific real-life business problem in Vermont: the decision by a national company to sell a Vermont asbestos mine; business reorganization of a ski area; the opening of a local cheese plant by a national corporation; and the specifics of operating three small businesses in the local community. In addition, they heard nine business managers explain corporate decision-making as they knew it, and its implications for the public interest. These speakers represented a major Vermont bank, a public relations consulting firm, a metropolitan newspaper, a St. Louis department store, and such national companies as J. C. Penney, Nestlé, and Chesebrough-Pond's. The student-volunteer-faculty consensus was that this experiment should definitely be repeated.

National Honor to Russian Professor

Robert L. Baker, professor of Russian at Middlebury, and director of the Russian School in the summer program, has been named president



Professor Baker

for 1976 of the National Federation of Modern Language Teachers Associations, a group of 15 regional or state associations of foreign-language teachers, and publisher of the *Modern Language Journal.*

This is the third time the Association has selected as its president a Middlebury language professor: Stephen Freeman so served in 1948 and again in 1955-56. Mr. Baker, a graduate of the Universities of Colorado (AB) and Michigan (MA, PhD) and a teacher of Russian at Indiana University since 1960, came to Middlebury in 1967 upon the retirement of Mischa Fayer.

. . . by will to the College on the Hill

From the estate of Donald C. Mathews '27, $20,139.18 to establish The Donald C. Mathews '27 Memorial in the Alumni Endowment. Annual income to be used in support of Middlebury Annual Giving.

From the estate of Michael J. Lahiff '12, $18,190.14 to establish The Michael J. Lahiff '12 Fund in the permanent endowment of Middlebury College. Annual income unrestricted.

From the estate of Cecilia M. Rudin, $1,000 to establish The Cecilia M. Rudin Memorial in the Bread Loaf Writers' Conference Endowment Fund at Middlebury College. Annual income to be used to support the Bread Loaf Writers' Conference.

tions. In the meantime, authorized staffing for the Geography department has been increased from three members to four for the next academic year.

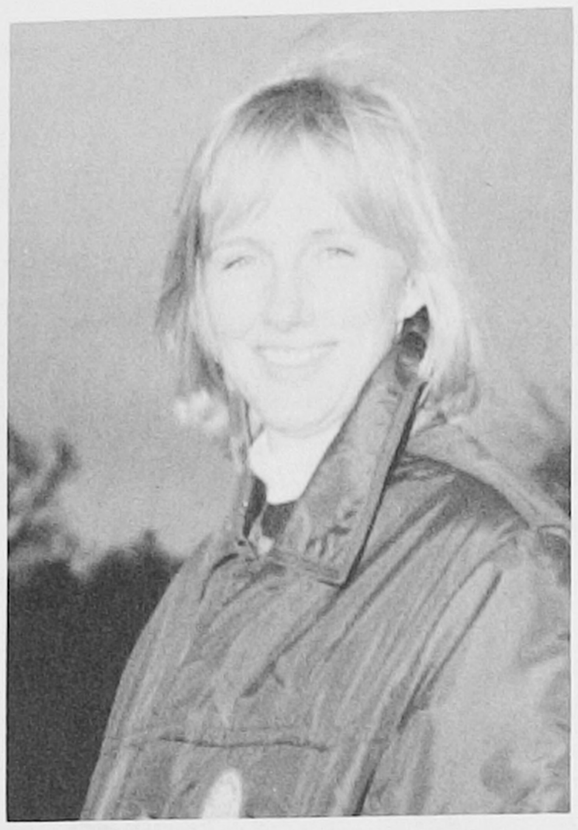
Prof. Malmstrom may be remembered by readers for his stimulating articles in these pages: "In Quest of Vikings" (Spring '70), "Computer-aided Cartography (Winter '71), "The Mayan Sacred Calendar" (Winter '74), and "Roman Holiday" (Spring '75). He discusses his students' most recent findings at Izapa, in this issue (page 15).

Former Olympians Coach at Snow Bowl

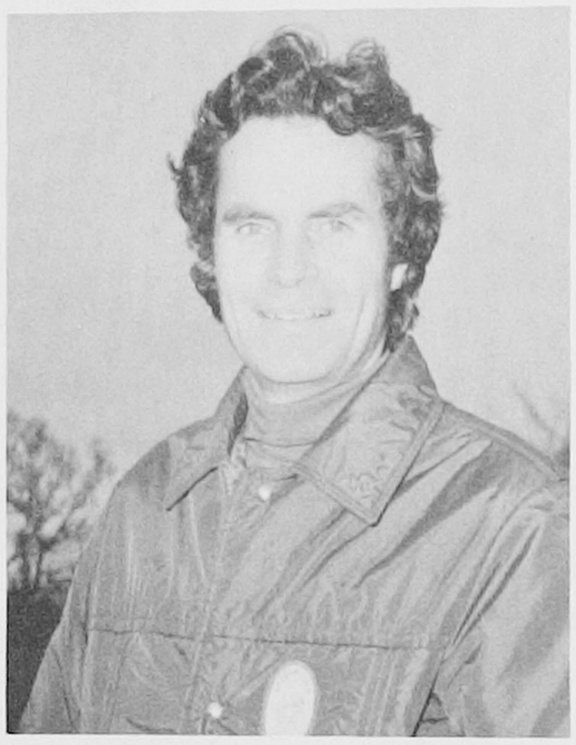
Gordon Eaton '65 and wife Karen Budge Eaton, each an alpine skier on two US Olympic teams, joined the College's reorganized intercollegiate ski program, this year, as assistant coaches. With assistant coach Charles Brush '69 they will coach men's and women's slalom and giant slalom racing, under head coach Terry Aldrich.

From Littleton, N.H., Gordon was an outstanding alpine skier on the Panther teams of 1959, '61, '63, and '65. He left college temporarily to compete on the 1960 and '64 Olympic teams and the 1962 FIS squad. Upon graduating in 1965, he became a special coach to the US Ski Team and then alpine coach at the University of Colorado. Between 1966 and '69, Gordie was head coach of the men's US Ski Teams during FIS and Olympic competition. He has also directed the Mt. Mansfield Ski Club's racing program at Stowe.

Karen, a native of Jackson Hole, Wy., who skied on the US Ski Team from 1967 to '72, was named to the 1968 and '72 Olympic teams and to the US FIS team in 1970. The Eatons have a one-year-old daughter, Abbie.



Karen Budge Eaton



Gordon Eaton '65

More on 1816

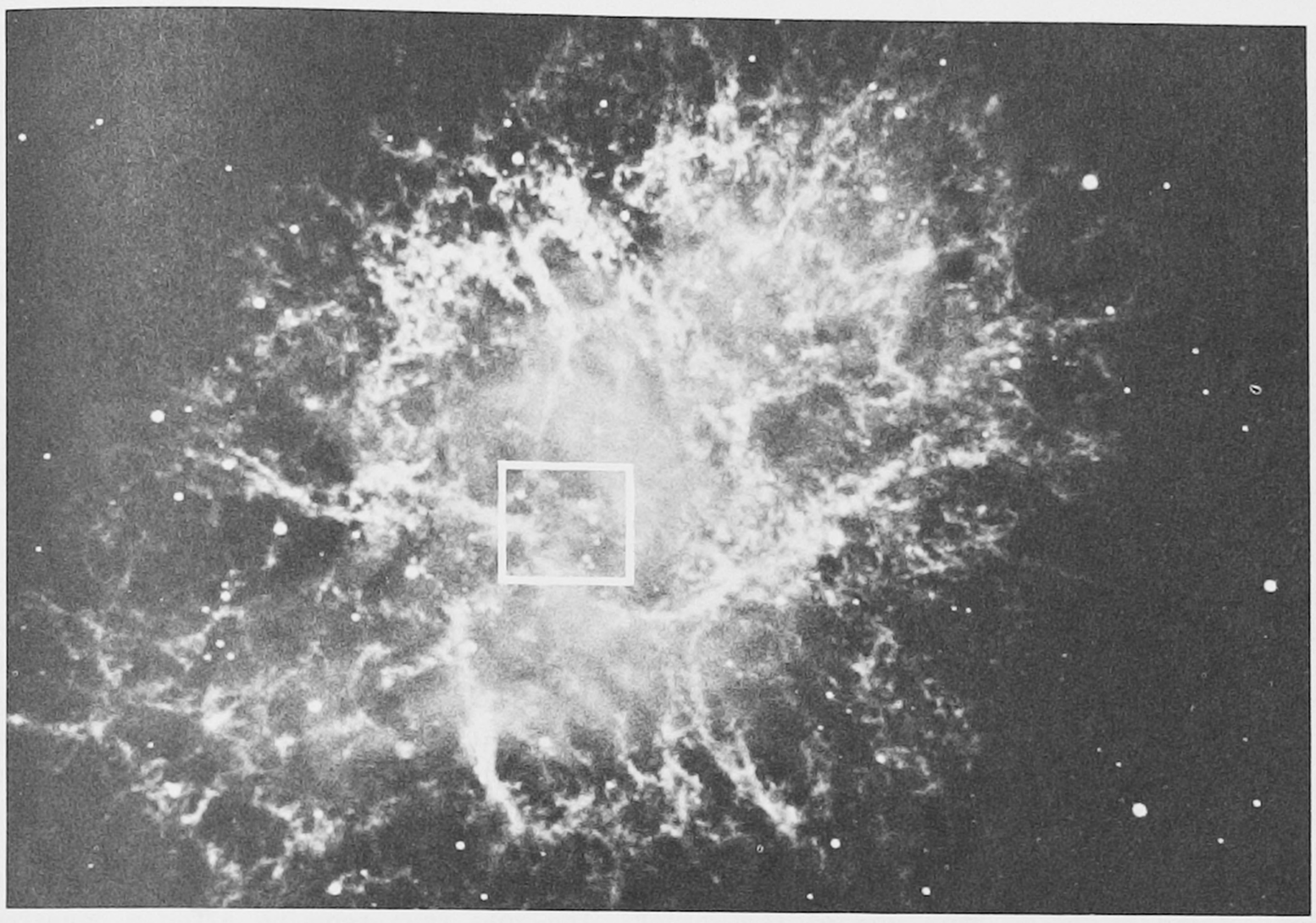
A fairly common experience of investigators is that barely has their research appeared in print than fresh material surfaces. The familiar lament runs, "If only I'd found that just 30 days sooner!" Scarcely had the anniversary issue of the News Letter come to hand when its editor came across an article in *Country Journal* for November that explained in general terms the mechanism by which a major volcanic eruption, such as Tambora's in 1815, can radically chill New England's summer ("Our Coming Climate", by Winkless and Browning, p. 39). The writers explain that the summer of 1816 isn't a *direct* result of screening out solar radiation, but rather of a southward shift of the North American storm track due to the continental land mass being abnormally cooled by that screening.

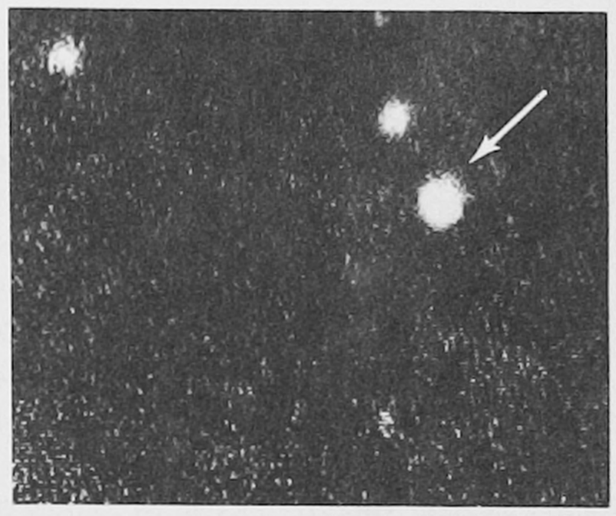
The North American storm track, which controls precipitation, enters from the Pacific over the state of Washington, the writers say, but where it goes from there depends on how much warmer or cooler the land mass is than the Pacific Ocean. If it's much cooler—as when volcanic dust in the stratosphere is "shading" the earth—the storm track bends sharply southward down along the Sierras into Mexico, where it swings eastward over the Sonora desert and out across the Caribbean toward the Bahamas. Such a storm track (very rare since the retreat of the last glacial ice sheet) would leave the upper Midwest and the Northeast extremely dry and cold. They believe that this is what happened in 1816 after Mt. Tambora in the East Indies blew its top the year before. There's a lot more to it than this, of course, and the writers, drawing upon a 1974 NSF study prepared at the University of Wisconsin, explain what causes the storm track to follow any one of six principal routes eastward across North America. Altogether, an interesting article with direct relevance to Middlebury's early history.

The World of Work

Although the annual ACE poll of freshman attitudes has shown that 50 to 55% of Middlebury freshmen have fathers who are in business, Dean Dennis O'Brien observes, "only 10% of those freshmen see themselves as headed for a business career. Yet we know that most of them are going to end up there; they can't all make candles! It seemed like a useful educational service, therefore, to set up a Winter Term course that would show our undergraduates what a wide variety of specific kinds of jobs are available in the business world and in other professions, and also to suggest that there are many businessmen out there who are really *enjoying* their work—they *aren't* all Willie Lomans by any means; they find their jobs challenging and their accomplishments truly satisfying. Similarly in law and in medicine: there's more to law than courtroom practice *a la* Perry Mason: there's civil as well as criminal law; there's corporate law, there's public-defender law, there's consumer law. And in medicine, there are many careers besides that of a practicing physician."

To present some of this variety, three "World of Work" Winter-Term courses were offered this year—The





The Crab Nebula, gaseous remnant of a star whose explosion was observed in 1054 AD, was first visible object to be identified as an X-ray source. Object indicated is a pulsar which pulses 30 times per second (see stroboscopic photos at right). This collapsed core of original star supplies energy for all emission from the entire nebula. (Lick Observatory photos)

radio emissions were coming not from the galaxies themselves, but from material apparently expelled from them by titanic explosions in the distant past. (One such galaxy is Centaurus A, the subject of Alice White's recent X-ray studies.)

Interest rapidly developed in studying the sky at frequencies throughout the electromagnetic spectrum, including X-rays. By 1960, advancing rocket and satellite technology made it feasible to lift instruments above the atmosphere and look for cosmic X-ray sources. The initial rocket flight to search for X-rays from space was a rather spectacular gamble, for it seemed highly improbable that anything would be detected. The sun was known to emit X-rays, but very weakly: it radiates most of its energy in the optical band and only a tiny fraction, one part in a billion, as X-rays. Was there any hope of seeing X-rays from other stars? If the sun were located at the distance of the *nearest* star, some four light-years away, then the X-ray intensity arriving at the earth would have been a million times too weak for detection by 1960 instruments! The sun is a very ordinary star. Clearly any other star emitting detectable X-rays would be extraordinary indeed; it would have to radiate more energy as X-rays than as visible light.

The men responsible for the first successful X-ray experiment, notably Riccardo Giacconi of American Science and Engineering and Bruno Rossi of MIT, were betting on the resourcefulness of nature to provide such strong X-ray sources beyond the solar system. Yet the prospects were so slim that for their first rocket flight the primary goal was to look for solar X-rays reflected from the moon, which seemed to offer a greater prospect for success. This experiment in June, 1962, detected an intense flux of X-rays, not from the moon, but from what was apparently a small source in the general direction of the center of our galaxy. The source was so strong—several orders of magnitude greater than the most optimistic expectations—that Giacconi and his colleagues feared that the observation might somehow be spurious. Careful analysis gave them confidence in their results, however, and X-ray astronomy had begun.

Several rocket experiments were carried out in the next few years, and about 30 individual X-ray sources were found. But there was little clue as to what the sources were, or what bizarre processes might enable them to produce X-rays. It was hoped that some of these sources might be identified with objects that can be seen optically. But this was terribly difficult because, unlike optical telescopes, X-ray detectors do not focus radiation to give a sharp image. The most accurate positions obtained in the early experiments were a degree or so square, an area which may include hundreds or even thousands of stars when viewed through a large telescope. (For comparison, the apparent diameter of the moon is half a degree.) Better positions were needed to identify stars or other objects as sources of X-ray emission.

THE first X-ray source to be identified was the Crab Nebula, the remnant of a supernova that occurred in 1054 AD. A supernova signals the death of a massive star, as it literally blows itself apart. The explosion produces a spectacular increase in brightness; for a few weeks the dying star may be as luminous as all the hundred billion other stars in our Galaxy combined. The supernova of 1054 was such an event; according to astronomical records at the time it suddenly appeared as a "guest star" in the constellation Taurus and was bright enough to be seen in the daytime. Even now, almost a thousand years after the explo-

The Cosmic drama is punctuated with fireworks;
deciphering the plot is the challenge of

X-Ray Astronomy, an Adolescent Science

. . . And Middlebury students are making important contributions

By Frank Winkler, Assistant Professor of Physics

The science of X-ray astronomy was born on June 18, 1962, when a group of physicists headed by Riccardo Giacconi launched a rocket from White Sands, New Mexico. The rocket carried aloft the first experiment to look for X-rays originating somewhere in space beyond the solar system. It was only a small rocket, even for those pre-Apollo days, but the field which it opened has rapidly become an enormously rich one.

One reason for the surge of interest in X-ray astronomy is that it is a relatively new field; discoveries often come fastest in virgin territory. But more important has been the realization that X-rays bring news about dynamic objects and catastrophic events in the universe: dying stars, exploding galaxies, perhaps even black holes—those mysterious objects that have been swallowed up by their own gravity to disappear forever. Now 14 years old, X-ray astronomy has reached adolescence not only chronologically, but also in the brash spirit of its discoveries.

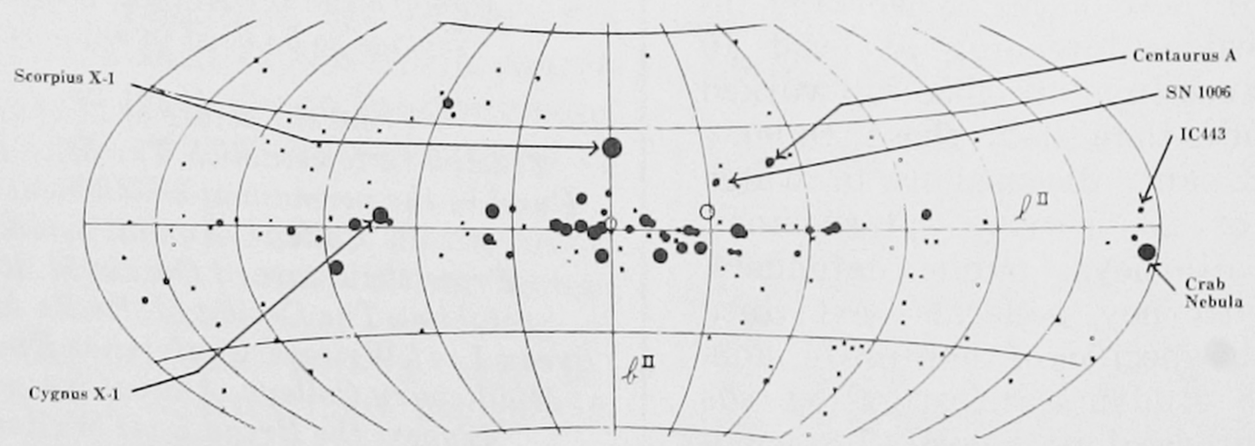
A number of Middlebury students and the author have been lucky enough to participate in this exciting research field. In the past year two of these students have made important discoveries in the course of their work. Frank Laird '75, from Ashtabula, Ohio, found the first evidence that X-rays are being produced by the corpse of a star which died a spectacular death in 1006 AD. Shortly afterwards, Alice White '76, of Berkeley Heights, N.J., discovered a sudden and dramatic increase in the X-radiation from Centaurus A, an unusual galaxy where explosive events must once have occurred. No other galaxy had ever been seen to change its X-ray output, and the explanation of how Centaurus A can do so now poses an intriguing puzzle for astrophysicists.

We can understand the significance of these two discoveries, and at the same time see how X-ray astronomy developed, by briefly tracing the growth of this young science. X-ray astronomy is the study of the sky as it appears in X-rays, rather than in visible light—the realm of classical astronomy. X-rays are at the high-frequency end of the electromagnetic spectrum, which also includes visible light and radio waves at lower frequencies. Whatever the frequency, all are waves of radiant energy which travel through space at the speed of light—186,000 miles per second.

Although X-rays are usually thought of as more penetrating than visible light, the opposite is true within the earth's atmosphere. While the blanket of air surrounding the earth is almost miraculously transparent to visible light, it is virtually opaque to X-rays. This opacity fortunately protects us from continual bombardment by X-radiation, but it also means that X-ray astronomers must lift their instruments above the atmosphere to observe the sky. This requires a balloon, a rocket, or an earth satellite—each expensive and requiring months or years of preparation.

"Why bother?" one might well ask; "What can we learn by sending X-ray telescopes aloft that cannot be learned otherwise?" The basic answer lies in the nature of astronomy, itself. Unlike a laboratory physicist, who studies nature at close range where he can investigate his subject by tickling or poking it in clever ways, an astrophysicist studies objects at vast distances. Nature runs the laboratory, and an observer must try to put together a puzzle from whatever pieces he can find. No clue can be ignored—and some important clues come via X-rays.

MAN had observed the sky only in visible light from prehistoric times until 1931, when Karl Jansky of Bell Laboratories developed the first radio telescope. His sensitive antenna detected radio noise from a broad region of the sky, which he recognized as the Milky Way. Radio astronomy did not come into its own until the 1950's, spurred largely by the radio and radar technology developed during World War II. It soon became clear that the "radio sky" is very different from the optical one; many of the brightest radio sources are inconspicuous optically, and vice versa. Nature was telling us that there is a rich variety of astronomical objects, many of which reveal themselves through radiation at frequencies other than visible light. For example, some galaxies which seem rather ordinary, visually, were found to be enormously bright at radio frequencies; further study revealed that the



In the X-ray sky, most strong sources lie along the Milky Way (horizontal axis)

large amounts of energy as X-rays; all of the sources are probably the result of exotic, dynamic processes.

Most of these X-ray sources were discovered by *Uhuru*, the first satellite to observe the X-ray sky. ("Uhuru" is the Swahili word for "freedom", chosen because the satellite was launched from Kenya on that nation's independence day in December, 1970.) Satellite-borne X-ray detectors represented a vast leap over rocket experiments in capability—observation times of months rather than minutes became possible. As a result incredibly more is now known about the X-ray sky than was known just five years ago; yet even now only a small minority of X-ray sources have been identified, and an even smaller number are understood.

AT Middlebury we have been working with data obtained from OSO-7 (the Seventh Orbiting Solar Observatory), the second satellite to carry X-ray astronomy experiments. Our work has focussed primarily on supernova remnants—objects which, like the Crab Nebula, are made up of debris resulting from a cataclysmic stellar explosion. Eight such objects are now known to emit X-rays, and of these, two were first identified at Middlebury.

The Crab is the only known supernova remnant with a pulsar as the power source. In the others, the dominant feature appears to be a shock wave caused by the original explosion and now spreading out through interstellar space. The violent shock wave sweeps up the tenuous interstellar gas (typical densities are one atom per cubic centimeter) and heats it to a temperature of a few million degrees. The result is an expanding shell of gas so hot that it radiates X-rays.

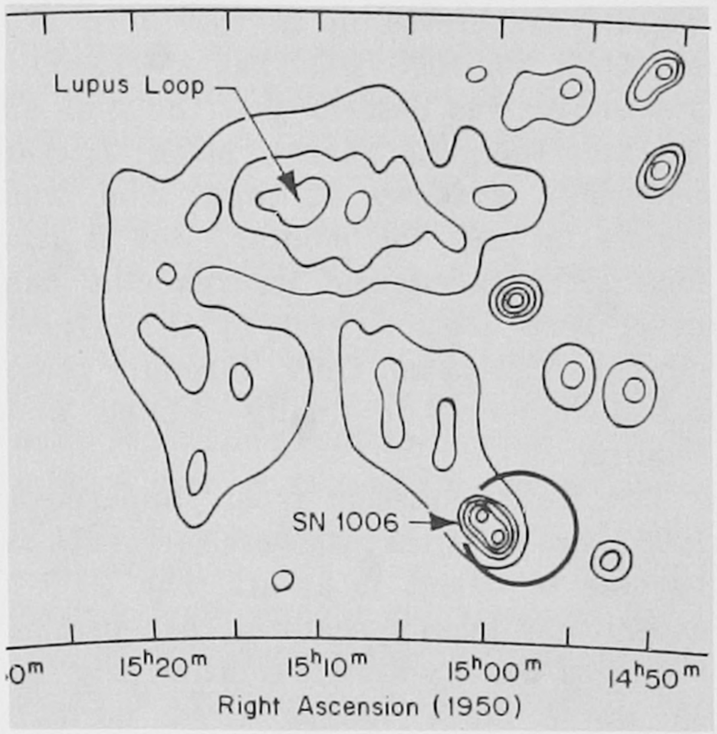
Study of the X-ray emission from these objects can tell us much about the density and composition of the interstellar gas and supernova debris. We can also determine how energetic these past supernovae were and how long it is taking for that energy to be dissipated. An analogy can be drawn with seismic studies of the earth, which give information both about earthquakes and about the earth's internal structure. Much of the information gleaned from these X-ray studies cannot be obtained by any other means.

One of the most picturesque supernova remnants, located in the constellation Gemini, goes by the mundane catalog name of IC 443. Compared with the Crab, IC 443 is a much older and larger object, the result of a supernova at some unknown prehistoric time. *Uhuru* had observed a weak X-ray source in this region, but had been unable to pinpoint its location accurately enough to positively identify the source. From our analysis of the OSO-7 data, George Clark of MIT and the author established that IC 443 is indeed an X-ray source and that it is probably only 4000 years old. This is only one-tenth the age suggested by an earlier and very tedious optical method.

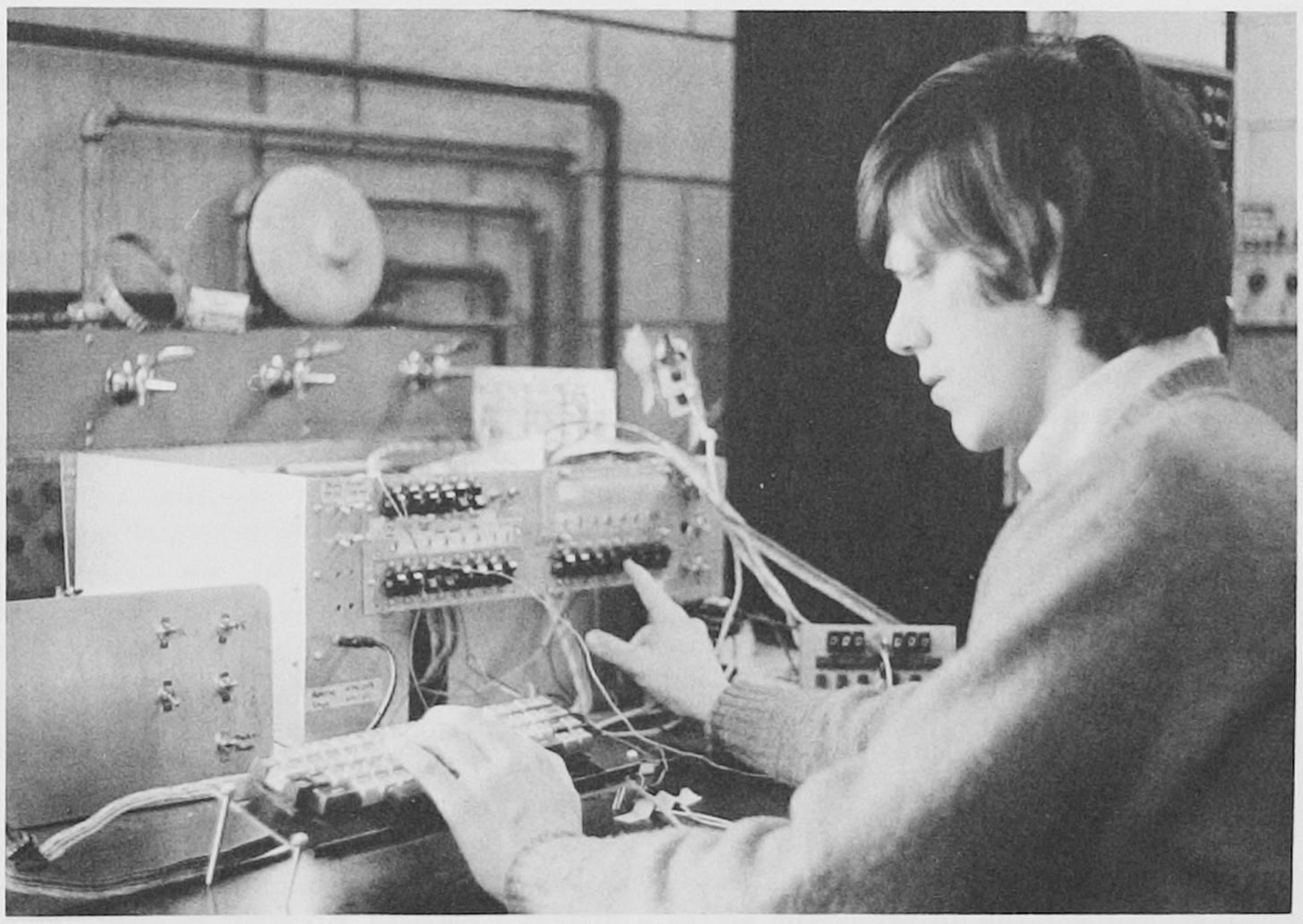
A more exciting discovery was made a year ago by Frank Laird '75 in the course of his senior-thesis research. He found the first evidence for X-ray emission from the remnant of a supernova

(Hale Observatories photo)

Typical older supernova remnant IC443, in constellation Gemini; bright shell of gas is about 60 light years across.



Contour map of radio emission from region surrounding Supernova 1006; heavy circle denotes location of X-ray source discovered by Frank Laird '75 to coincide with SN 1006 position as determined by radio astronomers. Bill Spencer '76, below, is using computer to model processes responsible for X-ray emission from supernova remnants.



sion[1], the remnant radiates energy at a rate 10,000 times greater than the sun. The Crab is easily seen through a modest optical telescope and to radio telescopes it appears as one of the brightest objects in the sky. When strong X-ray emission from a region in Taurus was discovered, astrophysicists naturally hypothesized that the source *might* be the Crab Nebula.

The confirmation of this hypothesis was made possible by the fact that occasionally the moon passes in front of the Crab, occulting it from view. Herbert Friedman of the Naval Research Laboratory learned in 1964 that the last such occultation for many years would take place in a few weeks, and he realized that this event provided a unique opportunity to use the moon as a shutter. If X-rays were emanating from the Crab, they would disappear while the moon was in front of the nebula. Friedman and his associates worked feverishly to prepare a rocket observation, which had to be precisely timed so that the five-minute flight took place just as the moon's edge passed across the nebula. The experiment went perfectly, and indeed the X-rays did disappear right on schedule.

It is worth looking at the processes at work in the Crab, both as a fascinating object in itself and as a case study in how a variety of observations and physical theory can eventually be woven together into a complete picture. By 1964 the Crab had long been recognized as a strong radio source, and measurements of the spectrum and polarization suggested that both the radio and optical radiation were produced by a process known as synchrotron emission. High-energy electrons moving through a magnetic field produce such radiation, first seen in huge, laboratory electron accelerators, or synchrotrons.

How were the necessary high-energy electrons produced in the Crab? One obvious answer might be that electrons were accelerated during the catastrophic supernova explosion 922 years ago and have been radiating ever since. But how long can such electrons radiate before they have given up all their energy? The answer here depends on the frequency of the emitted radiation: electrons can radiate at radio frequencies for millions of years, but in the optical range this radiation lifetime is much shorter—probably only a hundred years or so. Explaining how optical light is still being produced almost a thousand years after the explosion presented something of an embarrassment. Nevertheless, the rest of the pieces fit so nicely that astrophysicists tended to keep the basic picture and tried to make up the discrepancy through minor adjustments to the model.

Then the X-rays from the Crab were discovered and observations indicated that they, too, are probably produced by the synchrotron process. But the life expectancy for electrons which produce X-rays is less than ten years—a hundred times too short for them to have received their energy from the original explosion. Something in the Crab must be *continually* accelerating electrons to enormous energies—levels much higher than can be achieved in terrestrial laboratories. What the ultra-high-energy accelerator in the Crab might be was one of the major problems of astrophysics in the 1960's.

THE mystery was solved in 1968 when astrophysicists realized that a rapidly spinning neutron star lay within the Crab Nebula. The first of a series of results leading to this realization was the accidental discovery of pulsars by radio astronomers in 1967. Pulsars are radio sources which beep on and off with a regular period—on the order of a second in most cases. (Over a hundred pulsars are now known.) The discovery astounded the astronomical community and led eventually to the Nobel Prize in Physics for Anthony Hewish, one of the discoverers.

Theorists immediately began casting about for plausible explanations, which even included for a time the possibility that these were signals coming from an advanced civilization. (The first pulsar was nicknamed "LGM", for Little Green Men.) The only theory that could account for the pulsars' incredibly regular periods explained the pulses as a kind of lighthouse beam from a rapidly rotating star. We receive a pulse each time the beam sweeps past our direction. The lighthouse itself had to be a *collapsed* star—either a white dwarf or a neutron star—because a star of normal proportions like our sun could not rotate once a second without flying to pieces.

White dwarfs are old burned-out stars which have exhausted their nuclear fuel supplies and as a consequence have collapsed a hundredfold in diameter, to about the size of the earth. Such stars are incredibly dense; on earth one cubic inch of white-dwarf material would weigh ten tons. Nevertheless, white dwarfs are known to exist and many have been identified and studied for decades.

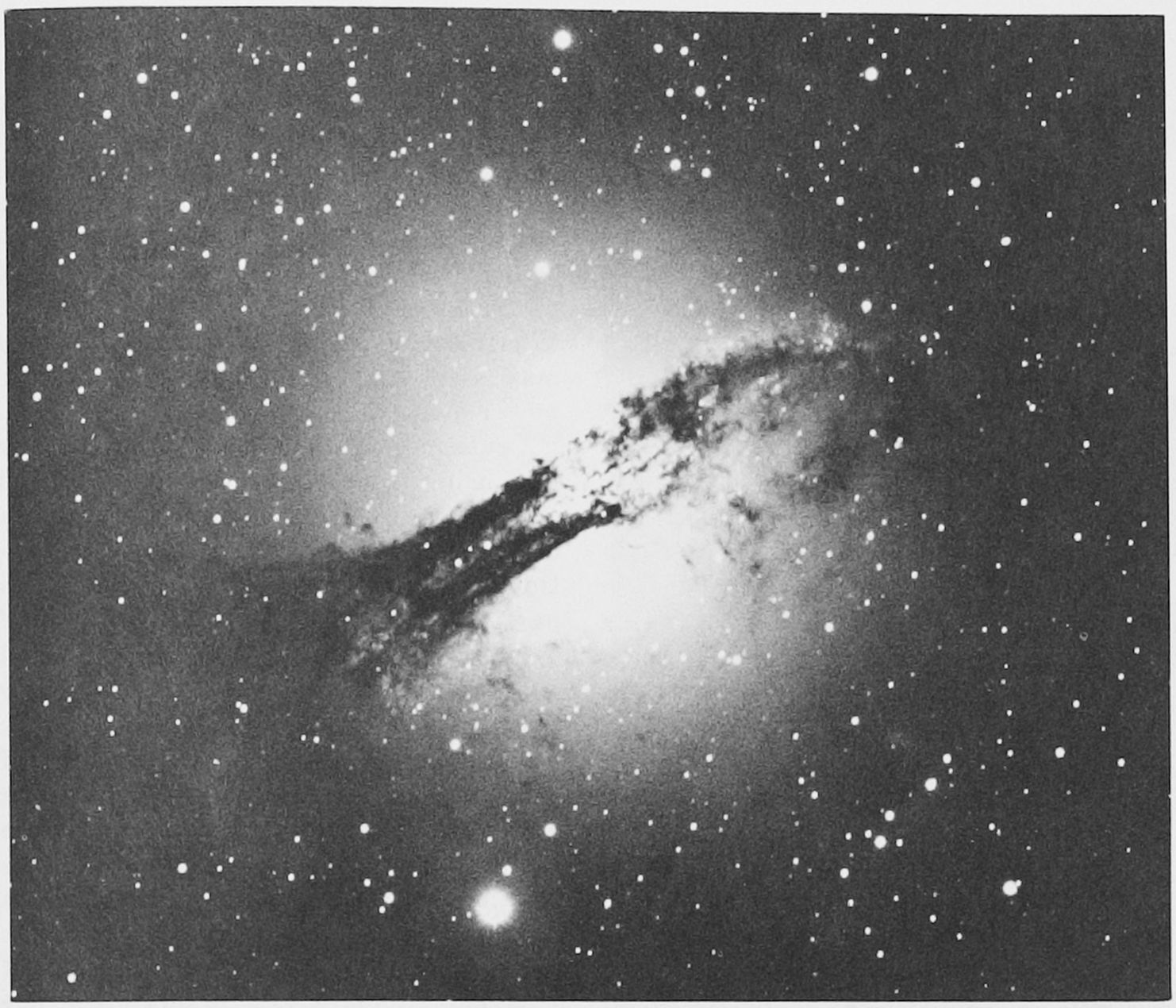
The alternative possibility of a neutron star was more exotic. Here, gravity has collapsed the star until it is a thousand times smaller than a white dwarf, with a diameter of about ten miles. A neutron star is much like a gigantic atomic nucleus, made up almost entirely of neutrons and having the preposterous density of a *billion* tons per cubic inch. As of 1968, no one had demonstrated that neutron stars existed; they had been invented as a theoretical possibility in the late 1930's by Robert Oppenheimer and others. If indeed they did exist, they could result from the death of a star—perhaps the core that remains after a massive star explodes as a supernova (?)

In 1968 a pulsar was discovered in the Crab Nebula which differed from all the others in that its pulse rate was much more rapid, 30 beats per second. Even a white dwarf could not spin this rapidly without tearing itself apart. The Crab pulsar must be a neutron star! This discovery also solved the mystery of the Crab X-rays; the neutron star acts as an electron accelerator, continually injecting high-energy electrons into the nebula, where they in turn emit the observed X-ray, optical, and radio radiation.

The correctness of this explanation was confirmed a few months later when the Crab pulsar was observed to be gradually slowing down. We can think of a spinning neutron star as an enormous flywheel in which rotational energy is stored. It must give up some of its energy to accelerate the electrons, and as a consequence the flywheel slows down. Measurement of the lengthening period indicates that the rotating neutron star loses energy at a rate almost exactly equal to the total rate at which energy is radiated by the nebula. The agreement is too close to be coincidental; a tiny pulsar powers the entire Crab Nebula!

There are now some two hundred known X-ray sources, and while the Crab seems to be unique in its physical mechanism, many of the other sources may be at least as interesting. Nature seems to have no humdrum means for generating

1. The actual explosion took place much earlier, because about 6000 years is required for light to travel from the Crab to the earth. The light we now receive was **emitted** 922 years after the explosion.



Galaxy Centaurus A, 15 million light years away, is strong source of radio and X-ray emission. The discovery by Alice White '76, below, that its X-ray output doubled in 6 days implies that X-rays stem from tiny region at center of the galaxy—less than a millionth of an inch on scale of this photo.
(Photo courtesy of Hale Observatories.)

being slung about in orbit by its invisible companion at a speed so great that the collapsed star must be at least 6 times the sun's mass. The mass is crucial, for it is believed that a neutron star more massive than *3* solar masses cannot exist: it could not withstand the crushing forces of its own gravity and would collapse to become a black hole. The hot gas in Cygnus X-1 seems to be broadcasting the news that it is about to be swallowed by a black hole—a message which comes in the form of X-rays.

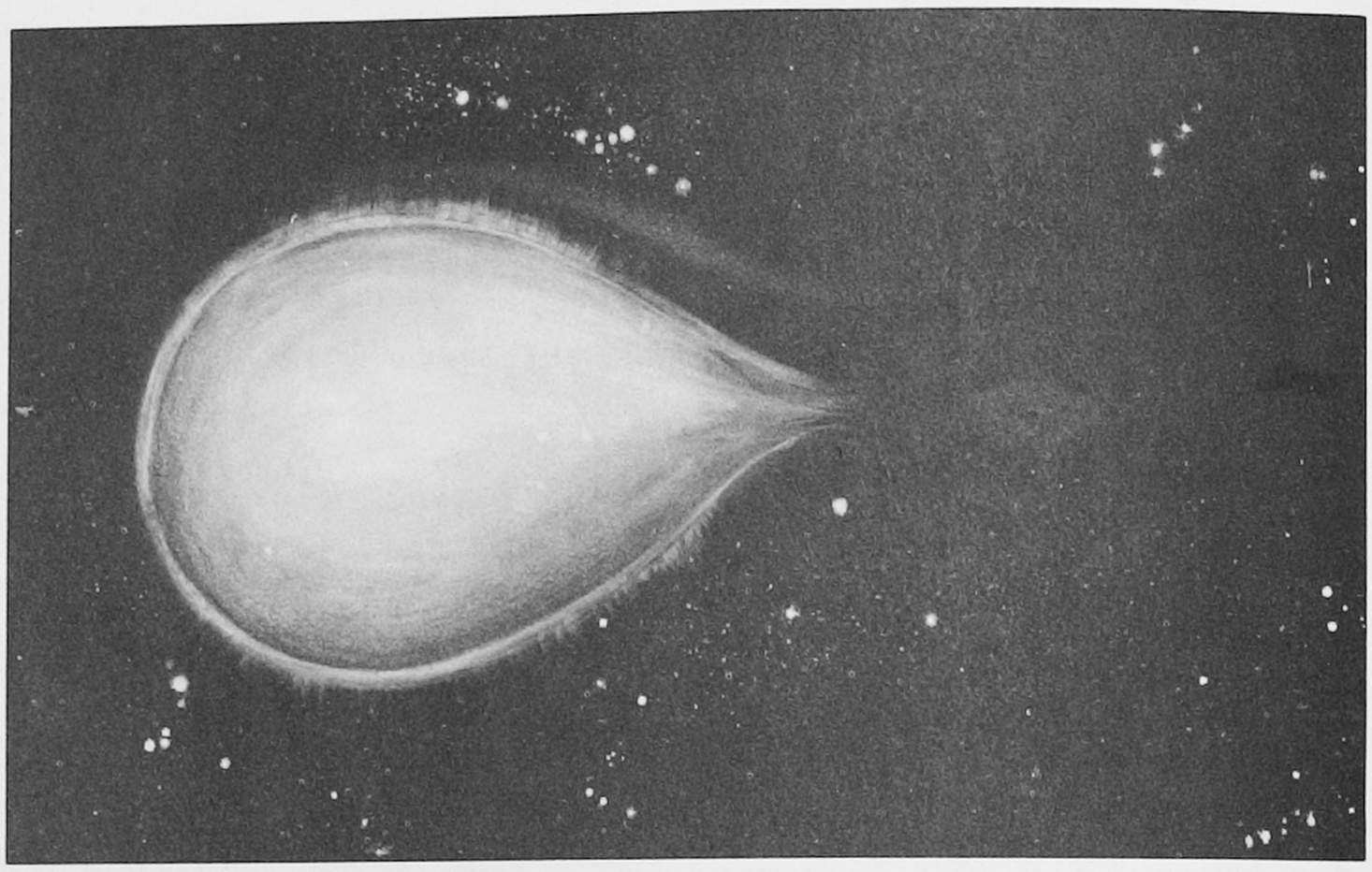
X-radiation has also been detected coming from remote galaxies and other objects far beyond the confines of our Milky Way. Because of their great distances, millions of light years to a billion or more, these sources appear much fainter, of course, than the bright sources in our own galaxy. Nevertheless, in order to produce any detectable signal, the X-ray power of those galaxies must be far greater than the combined output of *all* the sources in the Milky Way. For our galaxy, the ratio of X-ray to optical luminosity is about 1:10,000; yet a few galaxies have been found with a ratio 1:1, and perhaps 100:1!

X-ray galaxies are simpler than X-ray stars in one respect: their intensity remains constant . . . or so it was thought until a year ago. The reason is simple and is best illustrated by an analogy: Suppose that a large factory must double its production. The superintendent can't simply reach that decision and immediately find twice as many widgets rolling off the assembly line. *At the very least*, workers in all parts of the factory will have to get the message before anything can change. A galaxy is a pretty big "factory"—typically 100,000 light years across. It is unreasonable to expect an entire galaxy to change its power output significantly in less time than it takes for information to travel across the galaxy, or 100,000 years at the speed of light.

NEVERTHELESS, a group of British astrophysicists reported in late 1974 that Centaurus A, a galaxy noted for its strong radio emission, had increased by 400 per cent in X-ray luminosity in only two years' time. This finding relied on the comparison of observations from two different satellite experiments and while the result seemed valid, such comparisons are inherently risky due to possible systematic discrepancies between instru-

which burst forth in the southern sky on April 30, 1006 AD. That spectacular supernova was described at the time as brighter than the quarter moon; it cast noticeable shadows at night and was visible by day for months. But it has long since faded and its remnant has never been detected even by the largest optical telescopes. Only through radio astronomy was it finally located and studied.

The X-ray emission from "Supernova 1006" is so weak that we were fortunate to be able to detect it at all. The OSO-7 experiment luckily scanned that precise region of the sky almost continuously for 45 days, much longer than normal. Enough X-rays were recorded during this long exposure to make the faint source stand out clearly. Frank found that its position was exactly coincident with that obtained by radio astronomers, and concluded that the X-rays must emanate from the 1006 supernova remnant.



(Painting by Lois Cohen ; courtesy of TRW, Inc.)

Cygnus X-1 system consists of primary star (left) and black hole orbiting each other. Gas flowing from primary builds up "doughnut" about black hole and generates X-rays.

There are many other supernova remnants that are as strong in the radio band as Supernova 1006 or IC 443, but which have not been observed as X-ray sources. We have looked for X-rays from several of these, but so far the results have been negative; we can say only that any X-ray flux from them must be too low for OSO-7 to detect. While less dramatic, sometimes negative results can be as important as positive ones. In this case we are asking, "Why do some supernova remnants emit X-rays much more strongly than others?" This year William Spencer '76 is trying to answer that question through complex computer models of how supernova remnants emit X-rays. We hope that his work will enable us to turn negative results into positive statements about the processes at work in these intriguing objects.

WHY is it all so interesting? Supernova explosions are among the most cataclysmic events in the universe, and astrophysicists would like to know how nature makes such a great bang.

Equally important is what can be learned about interstellar gas—the raw material from which new stars are formed, as were our sun and its planetary system almost five billion years ago. Astronomers believe that when the universe began, it was composed almost entirely of the two simplest elements—hydrogen and helium. The more complex atoms—carbon, nitrogen, oxygen and other elements essential for life—were probably formed in old stars and strewn about space when those stars exploded as supernovae. It is now believed that such elements as gold and uranium were actually formed only in supernova explosions. Thus the earth and all its inhabitants are composed largely of recycled material from old supernovae!

The eight X-ray sources associated with supernova remnants are reasonably well understood in comparison to the remaining majority of sources—almost 200 in number. About two-thirds of these, including most of the brightest ones, are located in the Milky Way, and their most notable characteristic is great variability in brightness. In the optical sky, only a small fraction of the stars we see are variable; "the constant stars" is a cliche. Quite the opposite is true of the X-ray sky. If we could look at the sky with X-ray vision, we would see a psychedelic display: sources turn on and off, flare and subside, often changing in intensity by a factor of ten or more. Some pulse regularly with periods from a second to several minutes; others burble along sporadically; still others suddenly burst into existence and gradually fade away.

The evidence indicates that the galactic sources are compact, star-like objects, rather than several light years across like the Crab and other supernova remnants. Yet they certainly don't behave like normal stars, for they typically radiate energy at a rate a thousand times greater than the sun's and most of this radiation is in X-rays. There are only a hundred or so of these "X-ray stars" in our galaxy, versus a hundred billion or so normal stars, yet this small violent minority dominates the X-ray sky. How has nature managed to create X-ray stars?

Most are probably binary (or two-star) systems: a largish normal star, called the primary, is orbiting with a collapsed companion star, probably a neutron star or even a black hole. (An even more collapsed state of matter than a neutron star, a black hole's gravitational field is so enormous that nothing, not even light, can escape it.) Such a binary system can produce the great X-ray power we observe by a series of energy conversion processes. Gas continually streams off the surface of the large star, and is attracted by the potent gravitational field of its companion. As the gas accelerates inward, collisions between increasingly energetic particles result in high temperatures and X-ray emission.

In only a handful of cases have astrophysicists been able to identify the large star associated with an X-ray source and make measurements which confirm this picture. The most intriguing example is Cygnus X-1, the brightest X-ray source in the constellation Cygnus. The primary star in the Cygnus X-1 system is huge—30 times the mass of the sun—yet it is

On The Fringe

Being several quick sketches from a leisurely two-year cruise —Philadelphia to Papeete— by four classmates

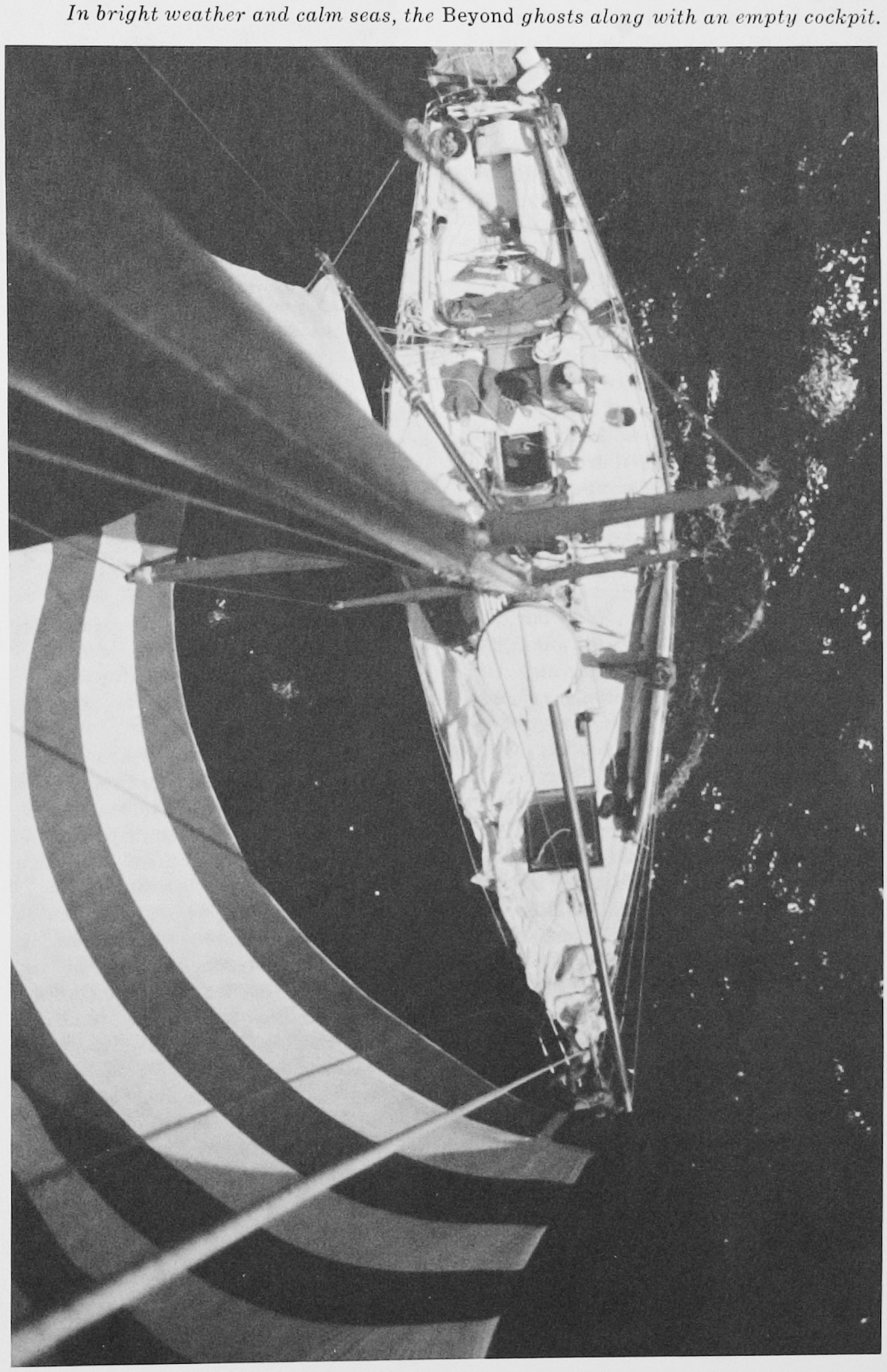
By Stephen N. Becker '72

We sailed in a 46-foot Erickson sloop called *Beyond*. *Beyond* was like a sausage-shaped corvette of teak and fiber glass. In January of '74 we were five days out of Kingston, Jamaica on an endless traverse. We set our course for the Reef of the Half Moon, part of the Quinto Suena Reef off Nicaragua. Our desire was to do some diving, there, among the grounded freighters and the underwater turmoil that surrounds them. We had just come through the Windward Passage. Avoiding the territorial waters of Cuba, we hugged the mountainous coast of Haiti. That passage was a staircase of twenty-foot waves in a narrow wind tunnel. We blew out our number-two genoa jib on a broad reach, our fastest point of sailing.

Today, the sail seemed ridiculously easy at seven knots. The standard Caribbean chop was unlike the Pacific. There was no distance in the trough between waves. All hatches had to be secured. With the ventilation cut off below decks, the air was stale and stifling. Rico (Jack Kendree '77) was in the upper bunk, exhausted and asleep, with his Carfamo fan on high. He had his bunk board secured—a handmade fiber harness hooked up to keep him in his bunk. As usual, for fear of the "red death" (heat rash), he was wrapped in a blue contour sheet. Deprived of fresh sea air, I was just beginning to feel queasy.

Suddenly our heel reversed. Everything that wasn't bolted down rocketed to port. Rico was ejected from his bunk: ripping through his harness, he dashed against the table. Still asleep and wrapped in his blue cocoon, Rico's face was pressed against the greasy perforated deck. Laughing at Rico, I looked at the galley and started swearing. From the helm, Pack (Bill Packer '73) shouted for help. Through the scrambled galley, I began to realize that the jibe was intentional. But in broad daylight? As I grabbed a winch, I saw the coral head—so narrow that it was barely awash. A thin long line of reef forming a cul-de-sac sat directly in

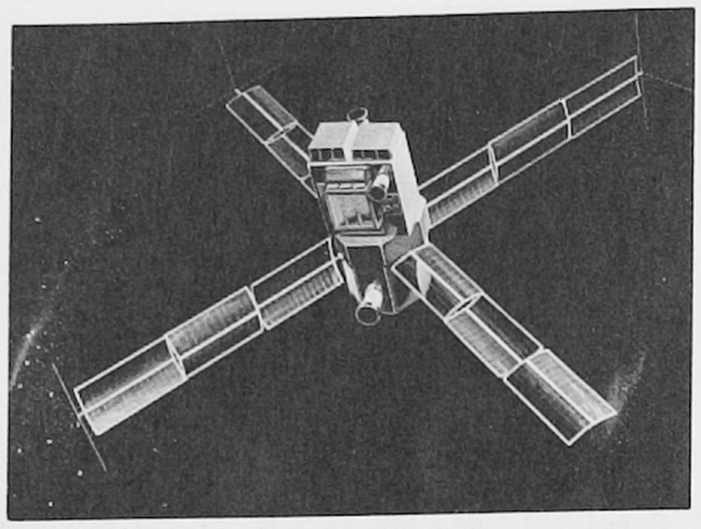
In bright weather and calm seas, the Beyond *ghosts along with an empty cockpit.*



ments. The OSO-7 satellite had been accumulating data over much of the period during which Centaurus A had apparently brightened. At Middlebury, Alice White '76 agreed to delve into this data as a Winter Term project, with the hope that we might unambiguously confirm the increase in luminosity. To our delight, we soon found that the X-ray flux from Centaurus A had indeed increased between two OSO-7 scans of this region several months apart. However, Alice encountered difficulty in analyzing the data from the final and most important scan, which had the longest exposure to the source. Something funny seemed to be happening; the computer couldn't fit the data into the usual pattern.

Finally, we realized to our astonishment what it was: Centaurus A had doubled in brightness over a *6-day* period while OSO-7 had been observing it! The X-ray power was enormous—10 billion times the total luminosity of our sun, and one fourth the optical luminosity of the entire Centaurus A galaxy. Yet because of the suddenness of the change, most of this X-ray luminosity must come from a tiny region, at most six light-*days* across, rather than from the galaxy as a whole. No other X-ray galaxy had ever been observed to exhibit such strange behavior.

No one knows how Centaurus A generates power so efficiently in such a small volume. There has been no lack of theo-



MIT's Small Astronomy Satellite

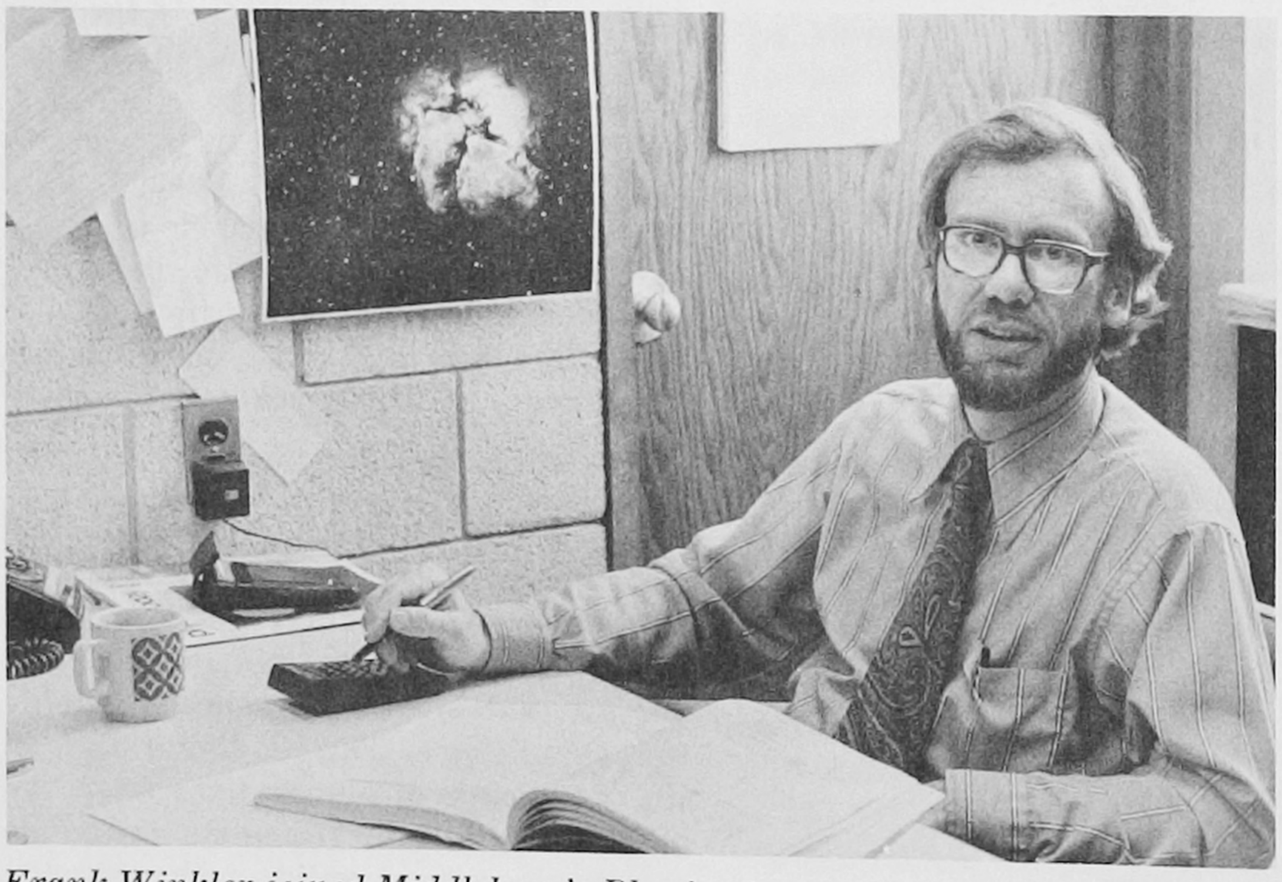
retical speculation, however. One of the more exotic models, proposed by a group at Cambridge University, is that the central nucleus of Centaurus A contains a huge black hole, 10 million times as massive as the sun. Enough gas might be swept in by the intense gravitational field surrounding the hole to heat up and produce the observed X-rays. But there are other models at least as plausible as this one, and more observations will be necessary to resolve the issue. Perhaps the key will come from some unexpected development just as the discovery of pulsars led to the solution of the Crab mystery.

If astrophysicists *can* understand the energy source in Centaurus A, this could lead in turn to an explanation of an even more perplexing group of objects, the quasars. These faint, apparently star-like objects are probably *billions* of light years away; therefore in observing them we are looking "backward in time" to a much earlier stage in the evolution of the universe. That we see them at all means that they must be incredibly brilliant objects, a thousand times more luminous than ordinary galaxies. Some evidence suggests that Centaurus A nearby (only 15 million light years away) may be a "mini-quasar." Whatever process provides its energy may work on a much grander scale to power quasars.

Centaurus A is one of many objects now being intensely studied by a second generation of X-ray satellites. Middlebury students and the writer are continuing our work in astrophysics through participation in observations from one of these: MIT's SAS-3, the third Small Astronomy Satellite. This is not a survey instrument like earlier satellites, but is designed primarily for detailed study of single objects or regions. SAS-3 carries a variety of versatile instruments which can be trained on a source to measure its position to within a few thousandths of a degree, or to look for intensity changes in times as short as a ten-thousandth of a second. This X-ray observatory has already produced a host of exciting discoveries and fully interpreting the data it gathers will challenge many of us for years to come.

The richness of the X-ray sky has exceeded the most extravagant expectations of the scientists who first explored it 14 years ago. We have found a bewildering array of astrophysical exotica: remnants of supernovae (such as the Crab Nebula, IC 443, and Supernova 1006); binary X-ray sources, many of which may contain black holes; radio/X-ray galaxies like Centaurus A; and quasars, located at almost inconceivable distances. In all of these objects high-energy processes are taking place—processes much more powerful and efficient than any which occur either on earth or in normal stars. Understanding these processes and their role in our universe has now become the central problem for X-ray astronomy.

At age 14, X-ray astronomy is in its adolescence: exuberant in spirit, having gained much information . . . and somewhat less understanding. Like all of astrophysics, it grows at an accelerating pace, with each answer unfolding new questions in an adventure that is at once frustrating and exciting. □



Frank Winkler joined Middlebury's Physics department in 1969. He began his work in X-ray astronomy with aid of the Faculty Leave Program in 1973-74; his research has since been supported by a National Science Foundation grant.

old man croons in a shrill whine, "Make a fortune!", as he lets the bones fly. We did well enough to finance a side trip to Machu Picchu.

Leaving the boat in the Canal Zone, we take an overland trip to Peru to visit Machu Picchu. During our investigations of that celestial site, the Ecuadorians revoke our visa to the Galapagos Islands. There are three reasons: The main reason is money. The Ecuadorian Navy runs huge tour boats to the islands, and wants only paying tourists allowed ashore. They also think yachtsmen are detrimental to the environment: Tagus Cove is where sailors have painted their names on the cove cliffs in white. This tradition goes back centuries, but the Ecuadorian Navy cites this as the ravaging effect of yachts on the island's ecology. The third reason for revocation is anti-American sentiment caused by US non-recognition of Ecuador's 200-mile limit. Thus, in order to go west, we must first go south. Along the equator we can pick up the tradewinds and the south equatorial current. So we decide to sail directly to Ecuador. The nearest port is Esmeraldas.

Esmeraldas

Perhaps the people of Esmeraldas are like the ocean that surrounds them. Far from shore is a clear current rushing south. Just outside the harbor is a mud river of current sweeping north. This dark vein of countercurrent is called "Aguaje." It is possible to see the darkening from a long way off, but one can't believe it exists.

The moment we arrive, the Ecuadorian Navy leads us aground. We are here because we were told that the port captain can issue us a *zarpe* (visa) to the Galapagos. We go to see Carlos, the port captain. Carlos leads us to believe he can get us the zarpe within days. Carlos is a balding alcoholic, who lives in a psychedelic pad complete with erotic posters and glowing fans with built-in black lights. Carlos invites us to his pad for showers and drinks, so we walk to his place that evening. Carlos thinks he is about to be killed: he is shaking, chain-smoking, and chugging scotch. He says that that afternoon the Navy and police tortured a black student. They hung the student by his thumbs to make him confess a crime he never committed. They were overzealous in their beatings and the student died. Carlos is filled with the miserable apprehension of retribution from the student's friends. "You see they all know my car with its government emblem. And it is parked outside."

Walking quickly, we turn the corner from his apartment onto the dirt main drag. Hundreds of black students are about a block away. They are banging rocks together and chanting in a crescendo. The mob comes toward us; we duck into a store just before the keeper rolls down a metal storefront. That night in the pandemonium, the students strike back; a cop is found with a knife in his chest slumped over the wheel of his jeep. Dirty Esmeraldas is in a volatile state. The second night a cuckolded husband finds his wife in the arms of someone new. He embeds his machete in her arm. She comes running into the port captain's office with her arm dangling. It falls to the floor. The next night a Navy MP on patrol spots a giant black breaking into a house next to the port captain's. The robber sees the MP and takes off. The MP shoots him through the back of the head.

The *Beyond* is one of the few cruising yachts to arrive in Esmeraldas. With nothing better to do, Carlos decides to detain us for his personal amusement. He invites us to the beautiful beaches and steep bluffs down the coast about forty minutes away by jeep. He stations a machine gunner on board during our absence. Three days of courting the port captain turn to five. Sleepless nights. Fear of the silent *kyuga* (a native dugout) and obsidian torsos skillfully ripping with razor-sharp machetes. Fear of falling asleep and never waking. Napping below decks with a 12-gauge pump and automatic rifle.

Coastal Equador is a rough land with a rougher harbor, but with gourmet cuisine. Giant *langoustino* are tangy fresh and the size of lobster tails. They are either tiger-striped red or zebra-striped orange. The fare is pureed-banana pancakes and shakes, melon, rice pilaf heavy with Canal Zone butter, rich green thick halves of oil-beaded avocado, mounds of slaw from great cabbages, and blood-red tomatoes. Daily we crank up the Onan generator and heat the GE toaster oven for shrimp-mushroom pizza.

Pack and Rico go to Quito; in the capital they hope to hurry along our visas. Susannah and I guard the boat. Sometimes the harbor is completely empty—only us and the *Las Palmas*, a fuel barge. It is almost desolate in our shallow anchorage with all the fishermen gone to sea. But this is definitely where it happens, when it does.

Once every day the wind salutes the sun. Southerlies gust off the land and test our anchors, pulling nylon taut as the 10-11-foot tide rips with the 50-knot wind. Then everything is heading into the wind and straining ferociously. *Kyugas* scream, tacking under sail. Every day, fishermen toss water to tauten their sails as they strain upwind. Clouds of dust sweep across the dirt streets over the playa but dissipate before they reach us. It is usually cloudy, but glaring. The glare never affects the red glazed eyes of the harbor people. A huge spotted porpoise comes every day to fill up with gurry from the shrimp boats. Then he humps his solitary way back out to sea.

Esmeraldas is a banana port. The tasty Ecuadorian green bananas called *guinao* go to Chicquita. The petroleum people ashore are German and Japanese. The Japanese are building a refinery. In five years, Esmeraldas will grow larger than the other Ecuadorian ports, Manta and Guayaquil. Now, Esmeraldas is a shallow port of dark people.

The Galapagos

Finally we are allowed in the Galapagos illicitly: playing upon the sympathy of the port captain at Wreck Bay, we are told to stay on the fringe, away from the centers of population like Academy Bay. The crystalline waters of the Humboldt current are very cold. Without special equipment cold-water diving is usually a drag. But underwater, the Galapagos are the enchanted isles. Seals, iguanas, and penguins lose their land apprehension underwater. It is possible to actually pet marine iguanas underwater; on land you can't get close. The unique arctic-equatorial mix of water makes for the most varied sea life imaginable.

With our range extended by a Zodiac dinghy and outboard, we can explore a lot more water. Off Pt. Espinosa we find an isolated cove where the thick pointed heads of nine or ten sea turtles are just breaking the surface. Expecting to find only the turtles, we dive. The water is murky; we have to be very close to anything before we can see it. Each second of swimming, here, is a face-to-face confrontation with cormorants, sea turtles, sharks, fur seals,

the glare. The folly of making a landfall on a reef made us deadly aware of the importance of dead reckoning.

I went aloft in the ratlines. The massive hulls of giant ocean-going freighters stood motionless to the north. We made for them on the very calm lee side of the reef. The angle of the sun highlighted the bottom clearly. In the gentle waters and afternoon sun everything seemed so controllable. A sinuous path weaving through the coral would take us into the middle of the reef. There a sheltered anchorage looked large enough to be safe. We got out the Avon inflatable dinghy and the Johnson 15 to check it out. We weaved towards the inner sanctum and found that the spot was too tight: there were some tricky submerged heads that didn't allow for a wind shift or dragging anchors. We had to get out. On turning around, the light was completely wrong; the surface had turned into a solid reflection. Then came a rise in wind. A moment of indecision. The current? Pack was on the first set of spreaders screaming, "Turn, turn!" The sharp antler coral disappeared from his view under the breadth of the beam. Helm hard over, I gunned the diesel. The yare hull missed the insidious razors. The narrow turning radius was luck: we had almost hung ourselves up by our own doing. A fog set in and the reef was full of wrecks aground on the coral we had missed—corroding fortunes of mariners with less luck.

San Blas Islands

Lower-Caribbean sailing, 1000 miles either side of Panama, is strange. It is not as bad as the Pacific doldrums, because sometimes there is wind. But the wind has a character of its own. It is fluky and unpredictable: the usual light air is from the north, then it will reverse to the southeast. A massive front can develop off the coast; bizarre winds of gale force rip with the front. The Cuna Indians of the San Blas call these winds "*Chocosanos*"—the British sailing directions warn about them.

On-course for Povenir, the port of entry to the San Blas, the *Beyond* is doing 8 frothy knots towing the inflatable dinghy. Checking the trolling fishline, I notice that the dinghy is lost. The loss has gone unnoticed for about two hours; we estimate it could be 15-20 miles back. We think out the drift triangle and start our search along the resultant. Just as

The crew of the Beyond, *from left, Steve Becker '72, owner Bill Packer '73, Jack Kendree '77, and Susannah Waterman '75—a.k.a. "Le Bequé", "Pack", "Rico", and "Boonie".*

we start, the wind dies. We motor very close to a long arc of reefs. These reefs are mostly just under the surface, awash in isolated spots, no trees. The lighting is soft, defining the contrast of dark blue with the green and browns of the coral. We rock gently side to side with the swell. As we close in on the reef the rocking becomes more extreme. We always curse our boat's high aspect ratio which exaggerates rocking while under power. Our estimate is accurate; Rico on the spreaders can just make out the rubber gob on the horizon.

A cable off the reef, the diesel shudders to a stop, 2200 rpm to zero in an instant. Pack turns off the juice immediately, and we go below and rip off the engine cover. The greasy foam insulation and the bilge black smell wrong. A myriad of red, green, white, black, blue, and purple wires unloosed by the rocking are severed and wrapped around the drive-belt stub shaft. A wire-reinforced Wonderflex bilge hose is a mere tendril in the color confusion. Wind-up of the main electrical conduit—the ship's thick jugular—has caused the abrupt stop and a painful bending of the engine mounts. We are drifting with each gently rocking swell toward the jagged edge. We put up sail, but there is no wind: it is the calm before a storm. The Avon is only a few thousand feet ahead, our only source of auxiliary power. Frantically we start the jury-rig rewiring.

Minutes pass, the heat and tension are oppressive. Susannah decides to swim and jumps over the side. She paddles around and shouts a running commentary on how close we are getting. She yells that she needs a hand to help her aboard. As she dangles over the side hanging to the rail, waiting, I come up from the engine and help her. When she comes into the cockpit, kicking her legs to help, a giant dorsal and then a caudal fin powers by. The two are so far apart, I can't believe it is the same shark. A 12-foot hammerhead makes a small circle and skims along the stern. Finally, maybe 10 yards off the reef, we get the diesel started. As Pack shifts into forward gear, it sounds as if the propeller shaft is scraping into the hull. At this point, we don't care as long as it runs. There is a storm coming and we race it to anchorage. We anchor it in the beauty of the most primitive culture left in the Northern hemisphere. The Cunas greet us in painted dugouts. They are all curious. The women touch us like children; they especially like Susannah's blond hair. But they paddle away quickly as the Chocosanos, gale-force winds, finally arrive.

Panama

In the Zone, two hotels, far from the neon obelisks and fluorescent pinnacles of Vegas, offer the Panama City version of casino gambling. Behind the numbered green of the craps table, a coupier scowls in the under-air-conditioned smoke. He scowls at the old man at the far end of the felt who is rolling our numbers. The

Olmec head (circa 1200 BC) found at LaVenta.

DID HIS FOLKS COME SAILING OUT OF THE WEST?

. . . Bringing America's earliest high culture from Polynesia?

Prof. Malmstrom's geography students discover at Izapa probably the oldest magnetic artifact in the New World.

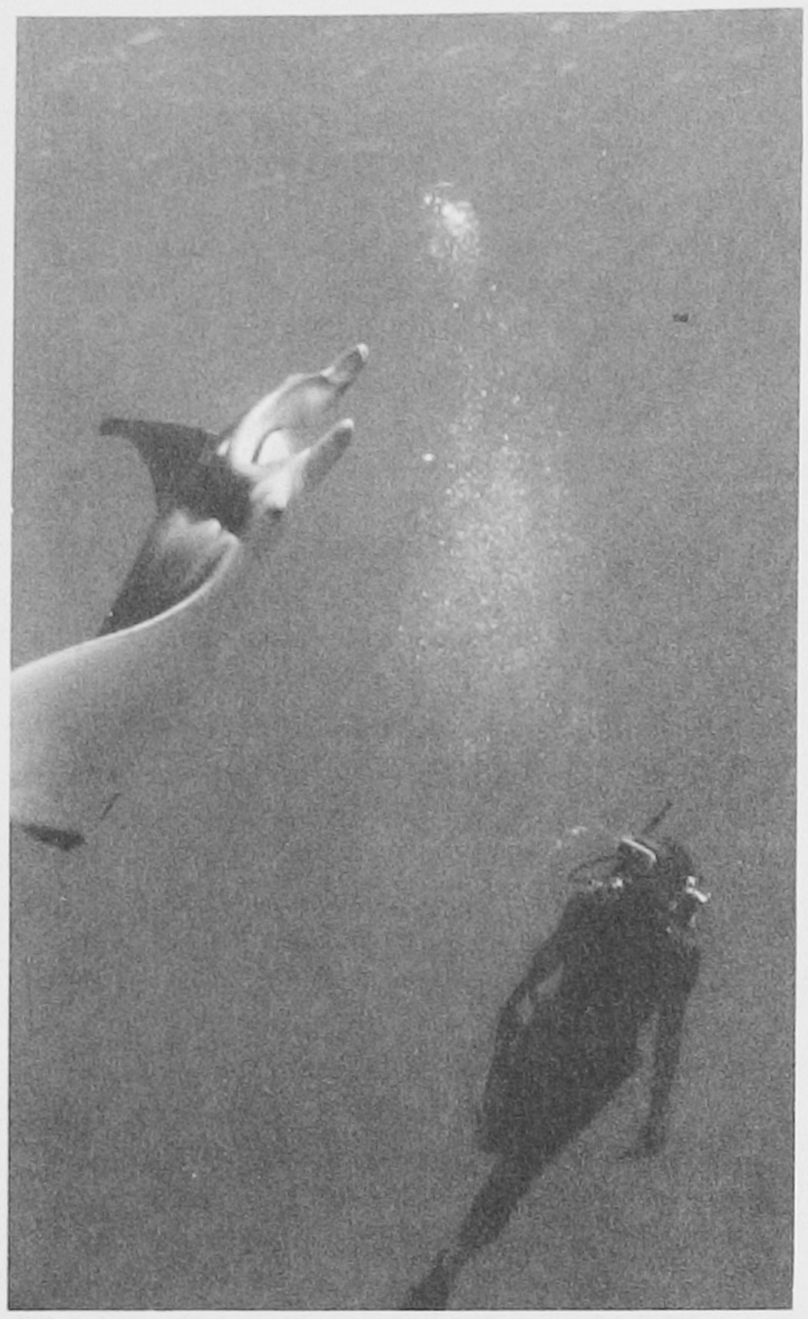
A story in the Winter '74 News Letter ("Meteorological Basis of Mayan Sacred Calendar Postulated") told how Middlebury Professor of Geography Vincent Malmström standing with his 1973 Winter Term students in the ruin of the Mayan observatory at Chichen Itza, was suddenly struck by a wild surmise—that the Mayan sacred calendar of 260-days was possibly related to the interval between successive dates when the noon sun cast no shadow. The story told how Prof. Malmström later determined that such a 260-day interval did indeed occur in a narrow band (just south of 15° N. lat.) across Meso-America; that precisely within that band lay Copan, the most important Mayan center for astronomy, and Izapa, a much older settlement near the Pacific coast; and that a number of evidences suggested Izapa as the site of origin for the 260-day sacred calendar.

Since then, Prof. Malmström has visited Izapa (Winter, '74), and has discovered that not only Izapa, but more than 40 other pre-Mayan cities or temples are so sited as to be able to calibrate precisely their 365-day secular calendar by a prominent mountain peak. Moreover, on the second Winter Term trip to Mexico and Guatemala (Jan.-Feb. '75), Prof. Malmström and 22 Middlebury students discovered at Izapa exciting evidences that it may have been founded by a maritime people from the Pacific.

To update our readers on these interesting developments, we interviewed Prof. Malmström last summer:

Malmström: I was led deductively to Izapa as the birthplace of the sacred 260-day calendar. The keypoints in that deduction were, first of all, Izapa is located at a latitude where the 260-day interval existed between vertical sun positions; secondly, it's located in a tropical lowland where many of the fauna depicted on the calendar are found as native wildlife; thirdly, the southward passage of the vertical sun occurs each year on August 13, which happens to be the date on which the Mayans themselves claim that their calendar began; and fourthly, the Mayans built their most important observatory city at Copan, which is in Western Honduras on precisely the same latitude as Izapa even though this location was more than 200 miles away from the center of their empire.

So while I had not visited Izapa on the first field trip (Winter Term, 1973), as a result of this particular deduction, I resolved to go there at my first opportunity—which was on the sabbatical leave in the Winter Term of 1974. In going to this site, I was struck first of all by the orientation of the main structures. The principal pyramid, I found, was oriented toward Tacana, the second highest volcano in Central America and by all odds one of the most impressive mountains I've ever seen anywhere. Yet, as I got my bearings vis-a-vis Tacana, I was disconcerted to find off to my right, to the northeast, an even higher mountain, Tajumulco, which is the highest volcano in all of Central America. This particular mountain I would have assumed to have been *more* sacred to



A manta ray checks out Susannah at 8 fathoms.

penguins, sea lions, iguanas, and manta rays. The cove is so teeming with life, we stay down in spite of the cold.

Diving the reefs

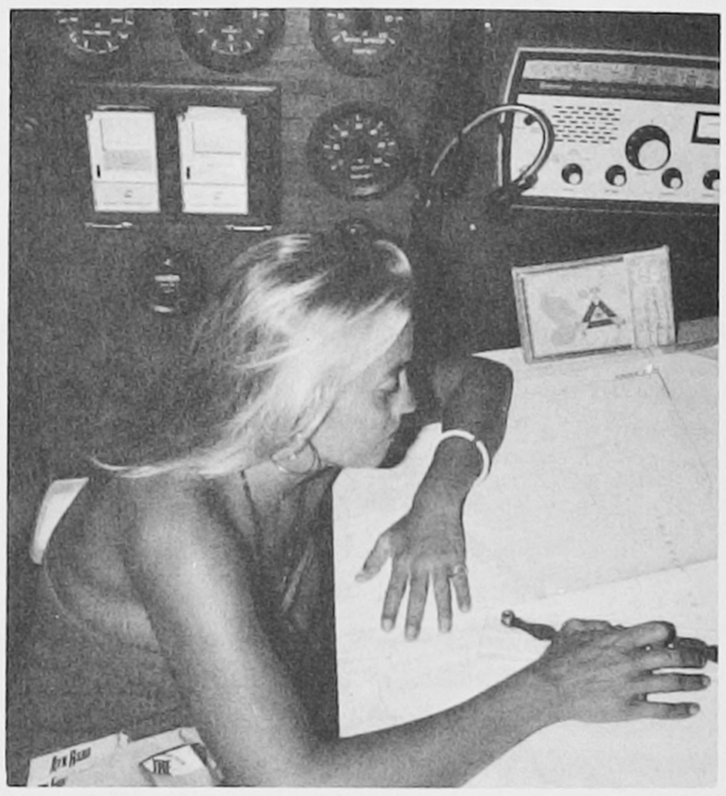
We are in the middle of the South Pacific, sailing toward the Marquesas. For the last three hours on the graveyard shift the rhubarb glow of the signet dials and the 240 rose-colored constellation degrees have been the total visual. We are passing the point farthest from any land in the world. The trades are predictable: every night at sunset the wind picks up. Yesterday, we surfed the waves with our spinnaker at a record 12-14 knots. But our run of 230 miles wasn't worth keeping the spinnaker up during the night. It was far too tough. Even without a spinnaker, our shifts of 2 on, 2 standby, 4 off are a grind. Without a wind vane or the use of our mechanical autopilot, eight hours of helm time enervates. Watches are exchanged, sometimes without words. Even after a year and a half of sailing, we all experience fatigue and boredom. Our only diversion is the pilot whales and porpoises. Living under continuous, 24-hour pressure, the crew soon learns resignation —after which it's easier to stay loose. But when something goes wrong, the pressure surfaces: it feels good to tell that person about it. Then it's necessary to let it pass just as quickly as it surfaced, to plug in a soothing 8-track tape and relax.

Usually we just lope along, stopping occasionally for a mid-ocean swim. Swimming in the solid azure is disorientating. As in sky diving where the only orientation is to the ground, diving in the open ocean has no orientation except to the surface. We would free dive to sixty feet and slowly rise through the clear blue. In free fall, it feels like floating; slowly rising to the outline of the fin-keel on the surface is the same thing—in reverse.

Four days before the Marquesas, Pack goes down for the count. Delirious with fever and stomach cramps, he develops an ocher pallor. His problem is traced back to a bad can of asparagus. Pack's pain turns into one of those visceral ordeals, lasting days. We sail and watch him writhe. Ironically, the first land we sight in 19 days is "Poison Rock". This is north of our rhumb line and close to Fatu Huku, in the Marquesas. On arrival at Atuono, Hiva Oa, we take Pack to the tiny *clinique* set up by French missionaries for treatment of elephantiasis. They give him a nostrum of *charbon*—little pieces of charcoal. We pay for the coal with bullets. On the *Beyond* Pack refuses the fire coal. The fact that they used to eat each other in this village in the days of Robert L. Stevenson shakes his confidence.

The Tuamotus are also called the "low" or "dangerous islands". Yachts go down in them all the time. It is an easy thing to do. The reefs are very steep. There is almost no way to tell them apart by sight. Currents are strong and unpredictable. Most sailors wait till slack tide to enter a lagoon. We didn't. We had no desire to spend a night hove to at sea. Entering Fakarava at the cut, we sailed through huge current waves caused by the emptying of the world's largest lagoon. The racing tide rips out at seven knots. The most the *Beyond* can do is 8 knots with sail and power. So it looks like we are trapped. The waves seem like vertical walls of water. The walls come one after another; we almost broach to, but make it.

But underwater the cut has another character. Diving in the cut is spectacular. Visibility is over 200 feet. Sharks hang along the sides and wait for the fish to funnel through in the current. Current riding is most exciting here, because of the bottom formations and caves. The cut is also the home of big fish like the 700-pound jewfish. The natives rarely dive the pass; they know of the danger. But schools of sharks seldom force a back-to-back retreat. We use a 40-horse Mercury to drive against the current. When the Zodiac is loaded with people and diving tanks, we need every bit of power the engine has.



The navigator plots her course.

Life at sea

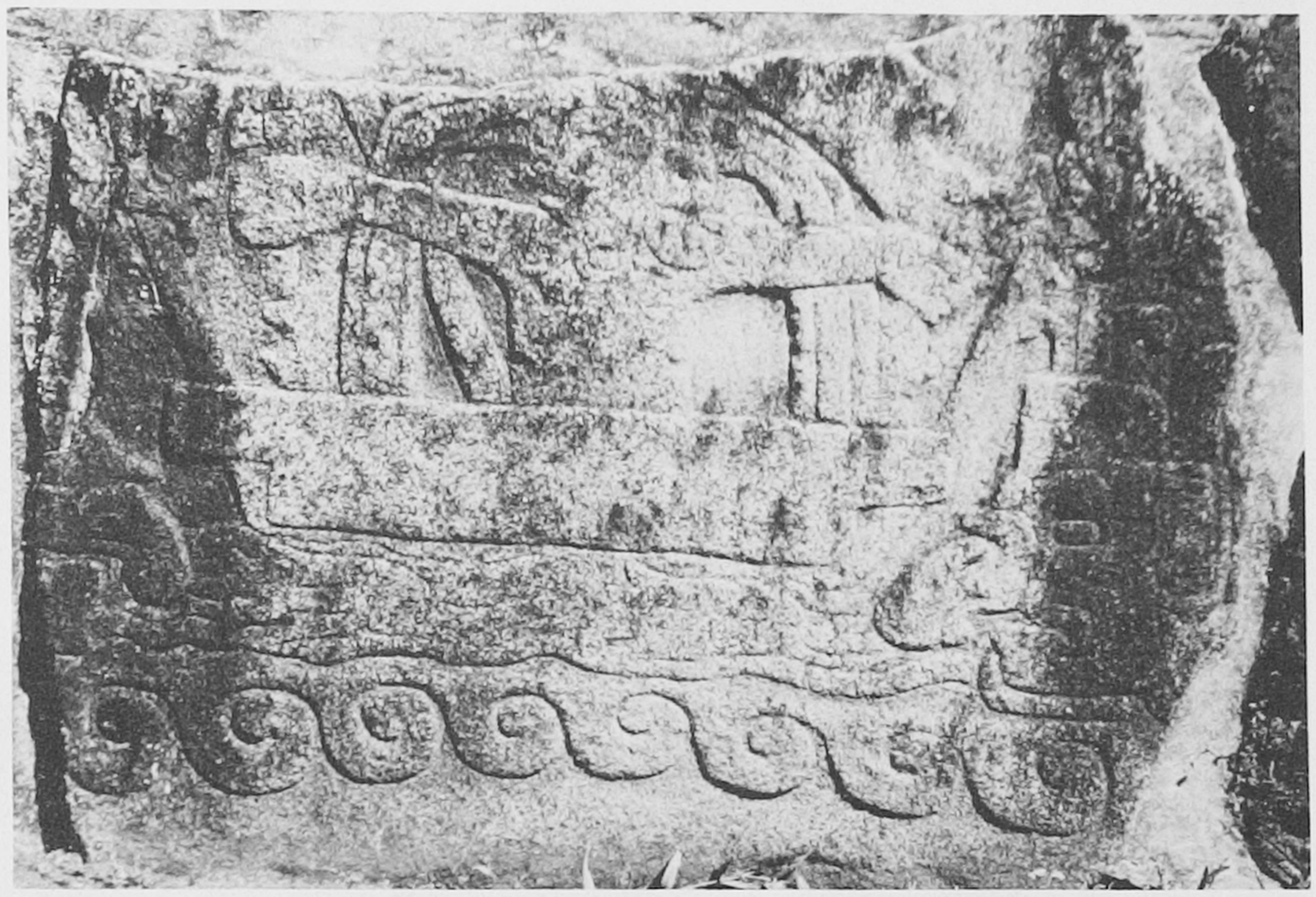
Transoceanic sailing is a succession of nadirs and zeniths, of uncertainty and freedom. To sailors both are precious. The worth of the whole ordeal is tested in the balance again and again. The ordeals take you to the fringe, not only geographically but psychologically. Short periods at sea and living on the sea are very different. Living at sea is living on the fringe. There are new rules to live by, different sets of variables to react to, and unique stresses to cope with. Life at sea can become, also, life on the fringe of your personal endurance . It's really very simple: either you want to go or you don't. When pushed to the very edge, a crew's unity is determined finally by how badly they want to go and nothing else. My own goal was to live in the uncontrollable flux of events surrounding the sea. □

Meso-American peoples built here the largest single pyramid they ever constructed anywhere in the New World. (This is the one that has the 25-acre base, alone—just an immense structure—built precisely between these mountains on this alignment, and this became the most sacred single place, the pilgrimage center of Meso-America.) Okay, so that part of the theory, I think, is still viable even though we didn't have 100% success in every case.

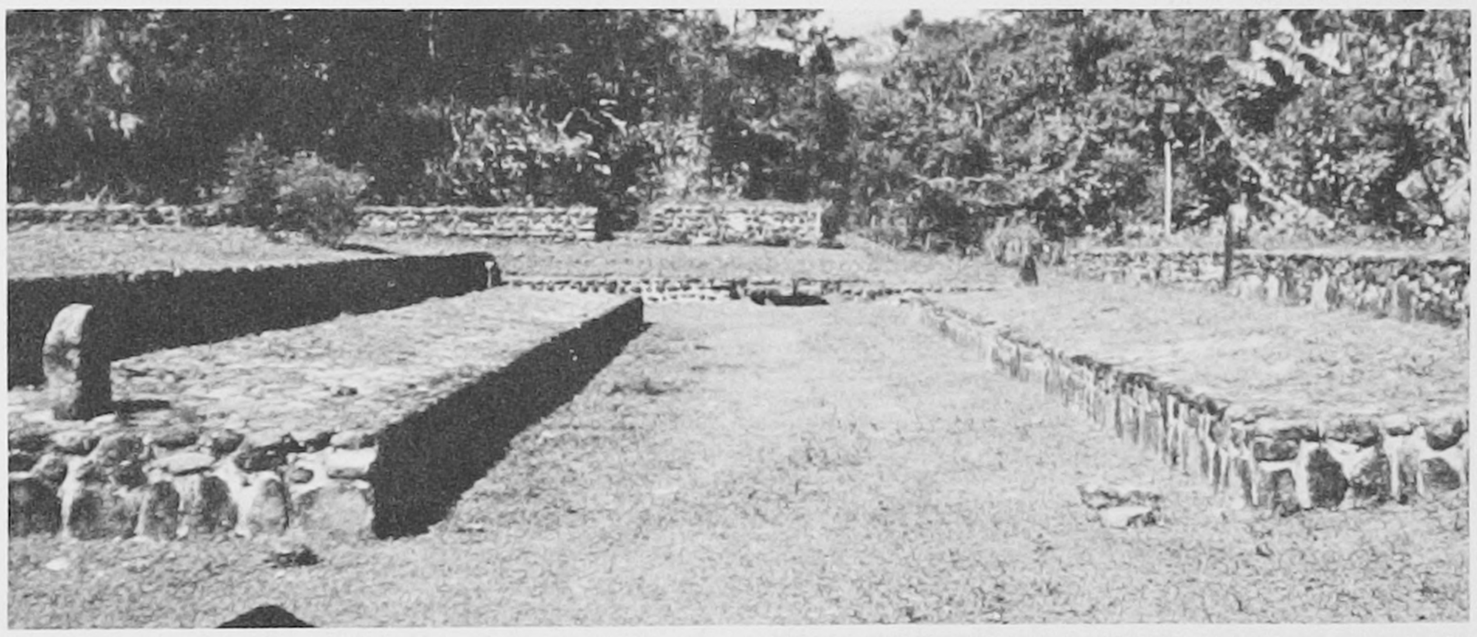
I think one of the other noteworthy findings, on this last trip, was the realization that the Mayan New Year's Day, which we know from Spanish chronicles fell on July 26, again should be thought of as a vertical-sun transit point. And if we conceive of it in those terms, it was passing overhead on that date at 19° 30 minutes north latitude, which happens to be a line that bisects the center of Yucatan. So in other words, if you were trying to choose one date that best fit the Mayan area as far as a vertical sun position for starting the calendar was concerned, there would be no single better day that you could pick! It's just right in the middle of the Old and New Empire; it bisects it almost to perfection.

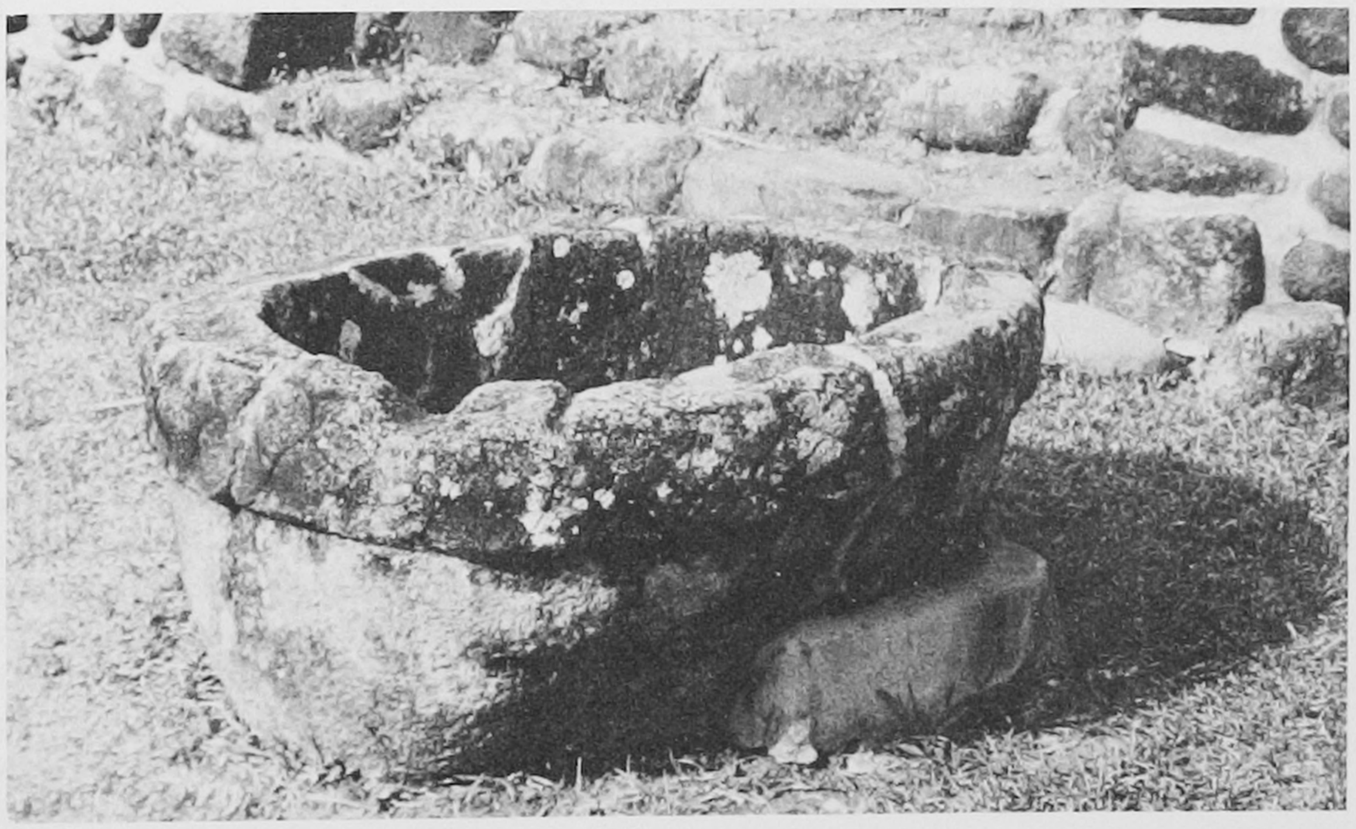
And in a way, what this suggests is a reinforcement of the theory that I first proposed about the 260-day calendar at Izapa—that you start counting from the time that the sun passes overhead on its way south. Now that's exactly the same principle that the Mayans used in their secular, 365-day calendar. And that to me, lends further support to my original theory that the 260-day calendar has to have been tied to the vertical sun. And this of course, is what's been debated by the archaeologists; they say it's simply "permutations of numbers, 13 and 20." Or it's the human gestation period. They ascribe no astronomical significance to it whatsoever. I think that we can throw that out now, once and for all.

The other findings from this trip have to do with the sculptures that we found at Izapa itself, and for this reason—there's not much difference of opinion amongst the students—the most exciting place on the whole tour was Izapa. Here's where things were really starting to fall into place. The first sculpture that we deciphered is of a person on top of a stele in a position of veneration toward the volcano, Tacana—oriented precisely towards Tacana, with his feet unmistakably hanging over the



In middle of side wall of Izapa ball court (below) Malmström found carving (above) of figure with outstretched arms, in boat. At bottom, stone basin carved as upturned tortoise shell, also found at ball court.



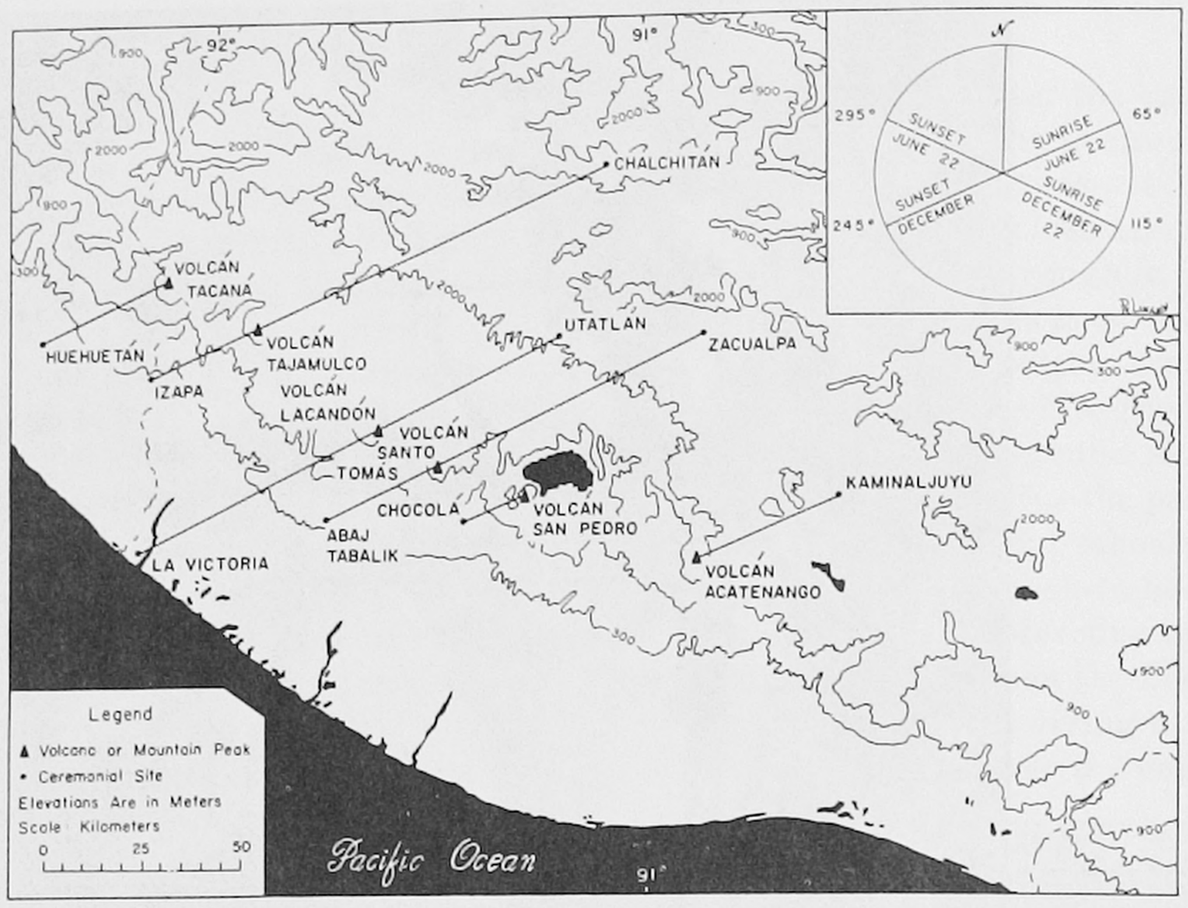


these people—if indeed they had a veneration of mountains, why not pick the tallest one? (I think I know why, now, but I didn't figure it out until more than a year later, as I'll explain in a moment.)

Well, first of all, when I measured the azimuth of Tajumulco, from Izapa, I found this to be 65°, and the realization that this azimuth actually marked the position of the rising sun at the summer solstice led me, then, to the discovery that from the top of that one pyramid in Izapa it was possible for the early priests to calibrate *both* the 260-day and the 365-day calendar—something that they could do *in no other place in the entire New World!*

Later, it occurred to me that these people quite obviously had no rapid or regular means of communicating, one with another, through the jungles or over the mountains of Mexico. And that if, indeed, this principle were to be applied elsewhere, then *every* ceremonial site, every city, would have to have its own topographic reference point. There'd be no other way that they could know when the summer solstice was being reached. So it seemed to me, then, natural to look for a pattern. Were there indeed other topographic features showing similar alignment or orientation to the major ceremonial centers of Meso-America? Well, the only way I could determine this was to get out my larger-scale maps and check them out, and I found in so doing, that there were *over 40* of the major Meso-American sites dating from the pre-classic and early-classic times, which demonstrate such an orientation! (I think the key point, actually, is the dates of these sites: in other words, up to about 600 AD the sites seemed to be oriented toward mountains. *After* about 600 AD it seems that they had found other ways of measuring the length of the year.)

There are a couple of key towns or ceremonial sites, such as Teotihuacan and Monte Alban, which are ancient in origin but don't seem to fit this pattern; but the interesting thing is that the bulk of the remainder do, and in fact, the most exciting datum of all is that both San Lorenzo, which has been radio-carboned at 1400 BC and La Venta at 1200 BC, seem to follow the pattern. Now if that's true, it suggests that the calendar in Meso-America is at least a thousand years older than we had previously



Nine of the 40+ site alignments discovered by Prof. Malmström: each of these nine has a peak marking a summer-solstice sunrise or sunset.

guessed. Because these two oldest Olmec sites, themselves, were oriented toward topographic features, suggesting that they were using mountains to calibrate their solar calendar, means of course that they had to *have* a solar calendar, and the earliest evidence, up to recently, was that cited by Morley, who claims that the calendar in Meso-America probably goes back to the fourth century BC. Well now, if we're going to 1400 BC, we've pushed it back a whole millennium just on the basis of the orientation of ceremonial sites.

Now again, can this be a coincidence? Can you have 40 coincidences?

I think that was the second major finding of that trip: first of all, the orientation to the mountain at Izapa, allowing both calendars to be calibrated, but then the thought that this by extension must have been true elsewhere, which as I say, seems to have been borne out by measurements from the map.

The third finding which was very provocative was the ship carvings on the ball court in the middle of the ceremonial ball field at Izapa. Nowhere have I seen—and I think the students who were with me this time would agree—have we seen anything as clear and indisputable as this carving. When you look at it, you can see a ship with a high prow, a high stern; you can see the waves; you can see a man standing in the boat and he's carrying what looks almost like a Christian cross.

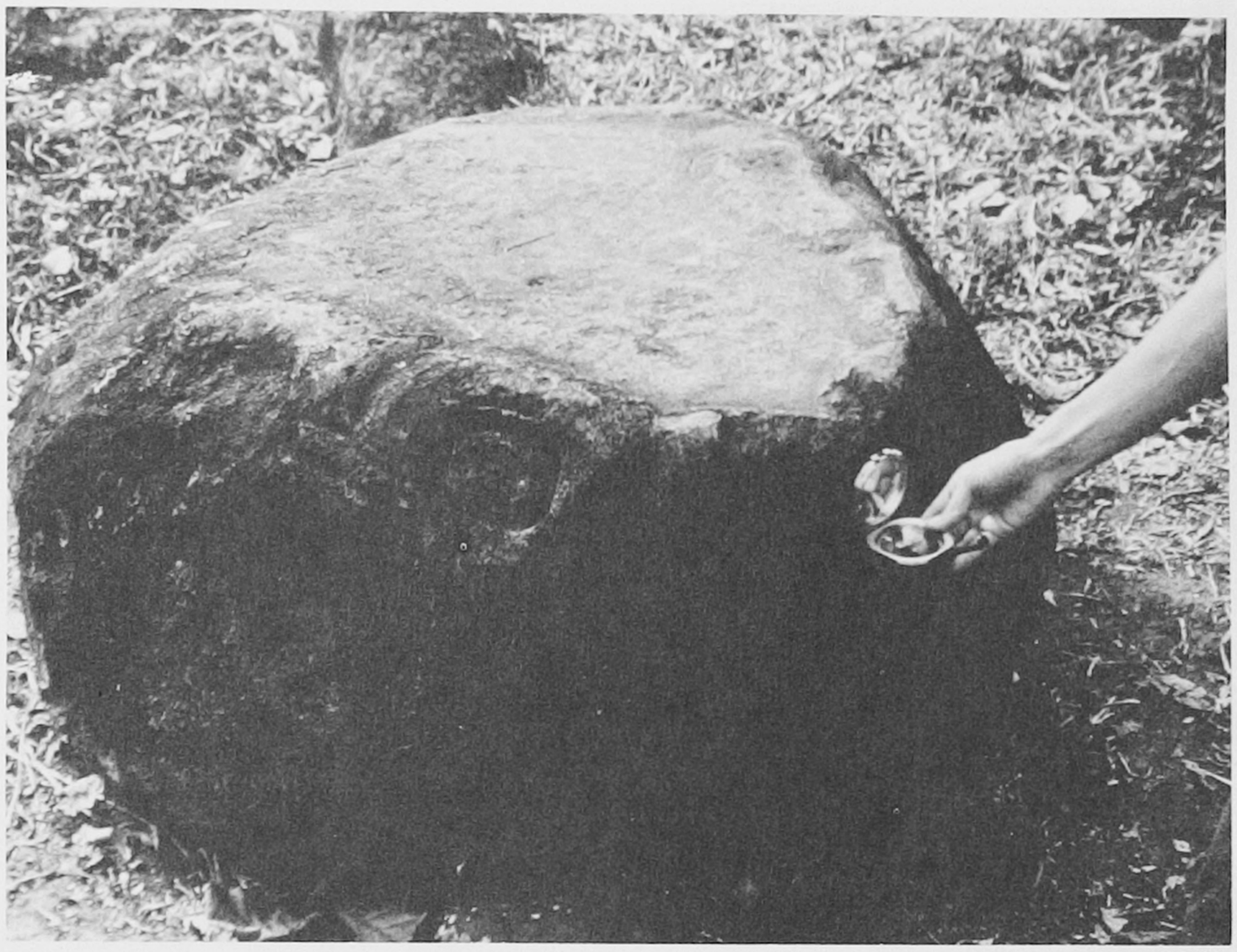
Well, this was a fairly interesting revelation because here at a site close to the Pacific coast of Meso-America was unmistakable evidence of a marine-oriented people. And that's why I say this began to open up all kinds of other questions: it suggested that not only was the calendar and the way of calibrating it native to Izapa, but that what we may be looking for is people who weren't even native, themselves, to Izapa, who had come by sea—and that began to boggle my mind because it led to all kinds of other things as we realized from our last field trip.

This, then, leads us to the Middlebury field trip that was made in the Winter Term of 1975, the major objective of which was to visit Izapa again. And a second major objective was to check in the field the validity of this topographic-orientation theory that I had come up with. Now when we got to Cholula, which was known to be the most sacred pilgrimage site of the entire Meso-American world, this site lines up perfectly not only with two volcanos, but with four. So that you could calibrate the equinoxes by watching the sun rise over Orizaba, the highest mountain in Mexico, and see it set into Popo, the second highest mountain; and you could calibrate the length of the solar year by watching it rise over Cerro La Malinche to the northeast, and then set over Ixtaccihuatl on the sunset of the summer solstice. If I had been a primitive person and watched the sun come out of one volcano and set in the other, this would have certainly been a very awe-inspiring place. This probably explains why the

and Guatemala that this current makes its northward hook, and I think you're quite right, that what these people were observing was an annual migration of this black tortoise, which was represented by the carving in the black basalt (maybe that was just happenstance, of course). But in any case, a tortoise which then took off a thousand miles to the south and ended up in the Galapagos Islands and seemed unfailingly to find its way back and forth. Again to the primitive mind, this must have been somehow associated with magnetism, a force that led them in that direction. That was my thought, anyway.

The third representation was the altar—the sacrificial altar in the form of a tortoise at the head of the ball court. In other words, this again played some role in their religious symbolism, as well. Because it's found then in three different forms; the head, the upturned shell, and the altar. So it must have loomed fairly large in their own mythology or in their religious belief.

Well, then, having been led to speculate more and more on contacts by way of the sea and this new-found interest in tortoises, I began to delve into some of the possible routes of movement that these people might have used in getting across the Pacific. And the one that seemed to suggest itself most strongly was the equatorial counter-current which flows all the way from the area of the Philippine Islands and Indonesia directly eastward to the coast of Costa Rica where it then curves northward to Guatemala. So it was along this coast then, that I made a detailed study of the landmarks and I found, first, that there's one little section of the coast of Costa Rica, itself, where the mountains can be seen for as much as 100 miles out to sea. It's a little strip about 75 miles in length, but an area which could very easily be missed. Particularly if you're moving along, as these people might have, at a sailing speed of anywhere from 100 to 150 miles a day. It's conceivable that in the short passage of one day, they could have passed the Costa Rican landmarks but in any case, the real evidence began to again point toward the coast of Guatemala because there four great mountains loom up over 10,000 feet to provide a strip of coast over *230 miles* in length, which it's possible to see from



Students discover polarity of magnetism in tortoise head aligns perfectly with snout—and is about 65° west of magnetic north.

more than 100 miles out to sea. Now there's nothing sacred about "100 miles", but I'm simply suggesting that you could be a pretty poor navigator—you could be literally missing the coast of the New World by over 100 miles and still be able to see it, while drifting along a strip of coast more than 230 miles in length! And along most of which you could always see one great peak, Tacana. This is the one most visible mountain through the greatest stretch of that coast. And in fact, because it lies slightly closer to the coast than Tajumulco, which is only 400 feet higher, for all intents and purposes it strikes a wider arc of visibility than does Tajumulco. And indeed would have, to a primitive seafarer, been *the* highest mountain. This answers the question that I first raised, Why did they go for the second-highest one and not for the highest? Well, to them it *was* the highest; it was *the* one that was visible from the sea. It was the great natural landmark that served as a beacon and drew them in.

Q: Now, how do you relate this hypothesis of the Olmec's being acquainted with a primitive compass to what is known about the history of the development of the compass in China or elsewhere around the world?

M: Okay, this has led me to go back into the beginnings of science in the civilization of China, particularly through Needham's multi-volume work. He pushes the knowledge of the compass back a fairly long time but he hesitates to go back much before 400 AD. Even there, he's very hesitant. On the other hand, he stresses that there was a special pseudo-science which they took very seriously, the science of geomancy: Geomancy has to do with the study of the lay of the land and relating one's choice of sites, such as for temples or cities, to mountaintops. The ancient Chinese refused to build a temple or a city that wasn't in the right place in relation to mountain peaks. And he says that they had court geomancers—people that told the emperor where to put his pavilions and pagodas—but the geomancers at a very early date relied on the compass in their work. But the transfer of compass use from geomancy to navigation, he says, was fairly late, as far as he can tell.

The other great clue that he put me onto, is that the real core of Chinese civilization was in the north and they were a landlocked people unacquainted with the sea; and only through contacts with people of Indonesian origin in the south of China did they begin to take on a maritime orientation. These southerners

Alignment of snake's head (foreground), upright stele, and tortoise head points to setting sun at summer solstice. View here is to SSE. Tortoise head was found to be basaltic lodestone (see photo opposite page).

back of the stele. The trunk of the body is missing, unfortunately, but the legs and feet are there and it's in position exactly where it was found and it's aimed precisely at the mountain. It looks then, very much as if we have a culture that venerates sacred mountains.

The other discovery, of course, was the magnetic tortoise head. In fact, we have an alignment of three carved stones, one a snake head, one a tortoise head, and the third a block or stele between the two, seemingly lined up with the setting sun at the summer solstice. But the exciting part of that alignment, as we were checking it magnetically, was the finding that the compass needle was deflected a full 65° from its normal reading as we moved back over the tortoise head! Now, not only was it deflected the 65° off of magnetic north, but it was deflected precisely toward the snout of the carved tortoise. Not through the eye, not through the ear, but the polarity of the stone itself is perfectly aligned with the snout of the tortoise.

Q: And it's 65° off of magnetic north?

M: Right. So in other words, the polarity of the tortoise is perfect within the stone itself, and aimed directly at the setting sun at the summer solstice. So there's a combination of things, here; the knowledge first of all, that there was the force we call magnetism—which is incredible in its own right, because these people had no iron! They were entirely deducing this from observations of a lodestone, a very high-iron-content basalt, which was found here in the mountains of Central America. But, the interesting thing in that regard is, there was only one stone, that of the tortoise itself, that was magnetic. All the others were similar basaltic boulders—rounded, eroded boulders—from the hillsides, but only this one was magnetic. Coming to Izapa, they had passed some of these tortoises on their way to the shore, finding their nesting places either in Guatemala or the Galapagos. Well, if this had been the only representation of the tortoise, I think we probably would have dismissed it. But, we also found two others: one was a block of basalt—in this case, nonmagnetic basalt—carved in the form of a tortoise shell upturned which, once filled with water, would easily have allowed a floating leaf, a twig, a straw, with just a splinter of this basaltic stone to lie upon it and of course the magnetic force would just turn the leaf right around, in which case it would point straight at Tacana, because Tacana happens to be located at precisely magnetic north of this site. So that would have been a very impressive demonstration for a primitive people.

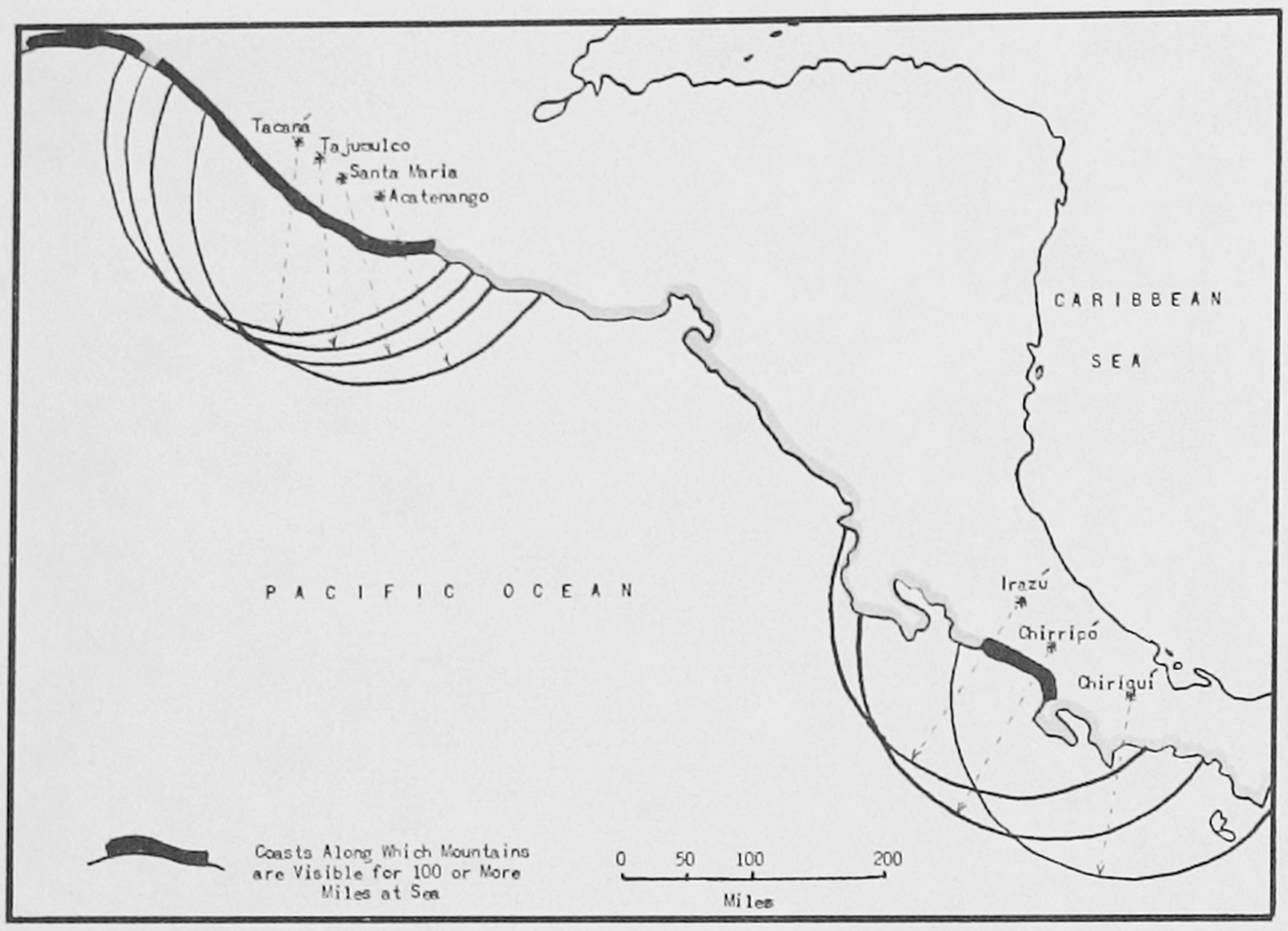
Q: Getting back to the turtles for just a minute: if the Olmecs had settled on the shore near Izapa, would they have observed an annual coming ashore of tortoises to lay their eggs and then taking leave out to sea again? Now if that happened every year, and they didn't see these huge tortoises throughout the year, but only at egg-laying time, then they would get the idea that these creatures had some kind of supernatural navigational power?

M: Indeed. In fact, the interesting clue in that regard is that I went through three books, here, on tortoises in the Science Library, two of which were written by Archie Carr, who is considered the greatest living authority on the tortoise, and as I was nearing the end of the third book in the series, three pages from the end, he suddenly interjects the bit of information that I was looking for—that there is one particular species of black tortoise found only one place in the world; it comes into the coast of Guatemala and it migrates between there and the Galapagos Islands where it nests! Well, that was just the piece of information that I was looking for because it's between the Galapagos

able for their particular economy—then would it not be just as likely that somebody would revered jade might have gone across the whole Pacific Ocean to look for it, too? We do know that the Chinese, the Polynesians, and the Meso-Americans were the only three peoples in the world that revered jade above all materials. They thought it was more sacred, more valuable than any metal. And when a noble died in China he was buried with a jade pebble in his mouth and when an Olmec died or a Mayan died, he was buried with a jade pebble in his mouth. Another of those coincidences, again.
Q: Did you see that Chinese art exhibit in Toronto? They showed a princess who was buried completely covered with chain-mail consisting of small jade plates.
M: Well that same thing happened at Palenque. This priest or king, whoever he was, was completely encased in jade under this 2-ton slab covering his sarcophagus.

Nine of the 22 students who made 4-week Winter Term trip to Mexico and Guatemala, Jan.-Feb. '75; with Professors Malmström and Illick. They little knew what lay in store—thieves cleaned out van in New Orleans and in Tehuacán, a student was mugged in a Tapachula alley, and one van developed gas-line problem, required towing by other van for 500 miles. In all, a memorable trip!

There are other clues here, also. There's a type of pottery called *jomon* pottery in Japan and the only place it's ever been seen, anywhere else, is along the north coast of Ecuador. This may even go back as far as 3000 BC. And that's what's really pushing our imagination because, here I'm talking conservatively about half that time span, 1500 BC. Now the Yueh people moved northward into China around 2000 BC, or even earlier. Also, we have pretty good evidence that the Melanesian area was settled from Polynesia between 2000 and 3000 BC—that's been radio-carbon dated. And people had reached even an area as remote as Easter Island by 400 AD, but that's way off the beaten track. Tonga, on the other hand, was settled by 1100 BC, and that's kind of a stepping-stone island, halfway out. So these people were venturing pretty far from land at quite an early date; and these are the recorded settlements, but of course drift voyages may have occurred before. We may be talking in a time frame of 2000 BC.
Q: And you think the Yuehs, themselves, based their culture on influences from westward on the Indian subcontinent?
M: Well, this is leading me more and more to wonder if what we're looking at is something that's been passed along from the Tamil peoples of south India. Our word "catamaran" comes from them, which suggests that they were using outrigger boats at a very early date, and that they in turn were simply transmitters of a culture that was coming out of the Mesopotamian area by sea, into the Indus valley and down along the Indian coast. I'm wondering whether we may have to look even farther west. It was the ancient Sumerians who actually developed the sailboat, originally.
Q: Is that right?
M: Yes, sailing goes back at least to 3000 BC or 3400 BC. And if the Sumerians started venturing out of the Persian Gulf and got on those monsoon winds, they could have easily come down to the coast of Africa and off to Ceylon and from there the world was their own. We may be talking about a diffusion that was bigger than I had even guessed when I started. I was looking to China; now I've been going down to Indonesia, and I see behind the Indonesians this Tamil influence, and behind the Tamil I may even see some Sumerians at work. So it's really been very, very intriguing, the farther I get into this thing!
Q: Just to establish the time frame again: the tremendous structures of Babylon—when were they built?
M: Well, you're talking there about urbanization beginning around 4500 BC, cities of some size and solidity. The Nile valley around 4000; the Indus valley around 3500; the central Asian area of the Soviet Union around 3000 BC, and North China around 2500 BC. So the urban diffusion is pretty clear-cut. The sailboat diffusion is another thing; this is something now that looks like 3500 BC in Sumeria, 3000 BC in Ceylon, 2500 BC in Indonesia, and 2000 BC in Melanesia, and then right out across the Pacific. You'll recall that Ocos, the settlement downriver from Izapa, has been radio-carbon dated at 1500 BC.
Q: So—it's possible that the cultural inventions of the Sumerians reached the New World in 2000 years—3500 BC to 1500 BC—borne eastward on the equatorial countercurrent?
M: Well, it's possible. But this is all "blue-sky" speculation, of course. And there's a mighty big gap between speculation and a presentable theory—a gap that may take a generation or more of close investigation to bridge. All we can say, now, is that there's very suggestive evidence for trans-Pacific cultural contacts as early as a millenium before the Christian era. And I believe that at least one of the key points of entry into Meso-America was near Izapa.



Coasts along which mountain peaks are visible for 100 miles at sea; current is to west-northwest.

were the so-called Yueh people. The Yueh people brought into Chinese culture some very important cultural artifacts. First of all, they were expert sailors. They were probably the best navigators the world had ever seen. Secondly, they venerated sacred mountains. They also brought into China the knowledge of iron and because of that, Needham thinks, probably the knowledge of the compass. And agriculturally, the Yueh people practiced clearing of jungles and opening little *milpas*, which is exactly the agricultural style in Central America, today. The Chinese had no such tradition, of course, because they weren't living in a rain forest.

So there's an Indonesian influence that seems to be at work here. It may go back beyond China, not only in location but also in time. We may be looking at an influence that came from Ceylon. They may be like Tamil peoples, or peoples of the Malayan peninsula who we know at a very early date sailed way over to Madagascar in the Indian Ocean and that island, today, still speaks Indonesian languages. Even though it's closer physically to Africa, it's real contacts are with Indonesia—linguistically, in terms of diet, in terms of culture pattern. In fact, if they could get across the Indian Ocean, westward, at that early date, there's no reason in the world that they couldn't go the other way. And Needham starts to get into, then, possible Chinese pre-Columbian contacts with this hemisphere and he gives literally five or six pages of evidence that shows affinities from one side to the other.

He points out, for example, that there were certain river boats used on the rivers of Indochina that have a curious outrigger that doesn't go down in the water, it stays up in the air. It just kind of rides out there as a counter-balance. And he says that they're only found in the rivers of Indochina—*and* in the rivers of Colombia, South America. We also know that the Indonesian people played panpipes, in which a set of five longer bamboo pipes is paired with a set of five shorter pipes; the longer set was considered male, the shorter set female. This idea shows up also amongst the Indians of Meso-America. Not only are panpipes played in Indonesia, in Polynesia, and in Meso-America, but they are all tuned to the same harmonic interval. It's that close; it's the identical instrument! I just picked up a book the other day, written by George Carter, of Texas A & M. For years he's been tracing trans-Pacific contacts and one item he has used is the chicken. There was a particular kind of chicken the Indians raised in Meso-America and they called it "*totori*" which is the same name for the same kind of chicken that's found in Japan. This is no longer coincidence; there must be a contact here! All the more fascinating is the fact that the equatorial countercurrent flows right through the heart of the Melanesian area, in other words the "black" islands. These are the Negroid peoples of the Pacific. The Negroid, Oriental, and Caucasoid peoples are all represented in the Polynesian type—and all three could have come over on the same boat, literally, to the New World, which will answer that question haunting archeologists in Meso-America, Where could these Negroid types come from? Where do these Caucasoid types come from? Where do these "Japanese-wrestler" types come from? They may have all been in the same boat; because Indonesia and the Philippines are the most racially mixed area of the whole globe.

Q: When you say Negroid type, you're thinking of those Olmec sculptures—what I think of as "football players"?

M: Right, with big thick lips, pug nose, yes. Very definitely, most people looking at them agree that they're strongly Negroid features. I have a picture of one of the Olmec heads taken at San Andres. I took the face, of course, first, but then as I got around in back of the head, here's the guy's hair shown in pigtails with little metal discs either twisted in the hair or tied up in the way that you've seen in pictures in the National Geographic right out of New Guinea, today.

Now as I say, because the equatorial countercurrent flows where it does, it would have been possible for each of these racial types to have reached Central America by the same means if not literally in the same boat. I estimate that it would have required about 70 days —or 100 days at worst. So even assuming they collected rain water, they'd have had to have with them a food supply to last them for over three months. They couldn't count on catching many fish out in the middle of the Pacific.

Now if it wasn't just an accidental drift eastward, but a deliberately planned trip, the question is, *why* would they have gone? Well, there again, I had a theory, myself, before I even started reading Needham, and he seemed to suggest that it was entirely possible: my theory was that if the Phoenicians would go all the way from the eastern Mediterranean to Cornwall in England to look for tin—something that was very valu-

MIDDLEBURY BOOKS

BURRAGE ON VEGETABLES. By Albert C. Burrage; 2nd ed. revised and updated by Susan and Timothy Hollander '65. Boston: Houghton Mifflin, 1975, xv + 224 pp., illus. $8.95.

This is a liberating book. We benefit from the experience and enthusiasm of two Middlebury graduates, who begin with a classic authority on vegetable gardens—*Burrage on Vegetables*—and enlighten all gardeners with a sane and sensible revision of the work of the master, Albert C. Burrage. As any holder of the baccalaureate knows, we stand on the shoulders of our predecessors. We can only improve on the past if we learn from the past and if we know that our freedom to improve involves limit and restraint. Susan and Timothy Hollander have improved by simplifying without essential loss, and yet have retained Burrage's sense of the "importance of the vegetable garden as a thing of beauty."

There is good information and good advice in Part One. As to advice, for example, the Hollanders suggest a list of necessary tools but importantly and succinctly comment: "Stick to quality." As to information, the section on making the garden is a readable and truly helpful account free of technical and arcane intricacies.

Part Two gives illuminating guidance for each of the vegetables commonly planted in gardens of the temperate zone. The dates and experience are from Mr. Burrage's Candlewood Farm in Ipswich, Massachusetts. From asparagus to tomatoes you will find factual data, difficulties, procedures for nurturing, and for storing where appropriate. Take carrots. Because the seeds often fail to germinate, we used to say, "Carrots will break your heart." And the Hollanders have some good advice to keep your heart from breaking over carrots.

Finally, Part Three gives methods of maintaining an attractive and productive vegetable garden, of cooking those incomparable vegetables from your own garden, and of serving them in all their delicacy during January!

A garden needs caring and tending just as a college does. The joys of both are great, indeed, and I am delighted to commend this book by the Hollanders to all those who love Middlebury and gardens.

JAMES I. ARMSTRONG
President-Emeritus,
Middlebury College

HEGEL ON REASON AND HISTORY: A Contemporary Interpretation. By George Dennis O'Brien, Dean of the Faculty and Professor of Philosophy, Middlebury College. Chicago: The University of Chicago Press, 1975 (188 pages, $8.50).

The strength of Middlebury College has been, and continues to be, the quality of teaching done by its faculty. This short and eminently readable book about Hegel exhibits much unobtrusive learning and scholarship and reveals to those who know Dennis O'Brien personally hints of the sly and dry humor which characterizes the speech of the man; but above all this book reveals a master teacher at work as he simplifies, organizes, interprets, and brings alive the central ideas of one of the most difficult thinkers of all time. If even the deans at Middlebury are possessed of the pedagogical power revealed by this study of Hegel's reflections on the philosophy of history, then Middlebury is rich indeed in the kinds of resources that are absolutely indispensable for liberal arts colleges as they face the rigors and austerities of the present decade and beyond!

But can even a master teacher like O'Brien make an incredibly dense, perplexing thinker like Hegel, whose categories are so foreign to our ways of thinking, intelligible and interesting to college graduates like yourselves, most of whom probably took just Middlebury's introductory philosophy survey, if that? The answer is an unequivocal "yes" and I can give some specific reasons why this is the case.

In the first place O'Brien is not himself a Hegelian. Books on Hegel by continental thinkers who are direct intellectual descendants of Hegel tend to be very difficult reading indeed. O'Brien, however, has been educated into, and I would guess finds his orientation within, the analytic Anglo-American mode of philosophizing that historically developed as a direct and immediate repudiation of everything that Hegel stood for in philosophy. It is not O'Brien's purpose to defend Hegel's metaphysics in toto—far from it. Rather, he starts by noting that many contemporary philosophers of history present a gross caricature of Hegel's conception of the philosophy of history—as they set it up in the first paragraph of their studies as a model of what the history of philosophy should *not* be. After documenting the pervasiveness of this contemporary attitude towards Hegel, O'Brien proceeds to present enough of Hegel's position to establish beyond any doubt that these contemporary characterizations of Hegel are indeed vicious (even if probably not deliberate) caricatures.

Now O'Brien is beginning to catch us up—why have modern thinkers done such a poor job of reading Hegel and if Hegel (admitted by all to be possessed of a gigantic intellect and a profound understanding of human nature and human history) didn't intend the simplistic views often attributed to him, what *did* he intend and why the confusion and misunderstanding? O'Brien turns detective and sweeps us up into his enthusiasm as he conducts a search for the intellectual task which Hegel set for himself—as opposed to the task that a generation of commentators has mistakenly attributed to him.

Letters

To the Editor:

The Winter 1976 News Letter again arouses and renews my pride in Middlebury College. What a wonderful account of the Inaugural and what thought-provoking speeches! Olin C. Robison is going to be a wonderful President and Middlebury graduates all over the world are welcoming him and ready to give him their support and loyalty.

My great appreciation of Middlebury causes me at this time to rejoice and remember. Probably, an average student at Hartford Public High School, I received the challenge of a Middlebury program from my Biology teacher, Elbert C. Cole, a Midd graduate and later a Williams College professor, who recommended that I go to Middlebury in 1920. The wonders of Middlebury challenged my leadership qualities and guided my abilities as teacher, principal of a home-making school, city supervisor, and State consultant. Fortunate enough to be recognized by such great Presidents as Thomas, Moody, Stratton, Armstrong and given opportunities to serve them, I hope to be of service to Robison and recognize his promise. For he said, "I would like first to make some assertions about the changing limits of the permissible behavior of institutions toward individuals."

What a wonderful Inauguration Issue! I thrill with pride that I have the opportunity to be a part of such thinking and acting and to receive the glory that comes to a Middlebury graduate today.

RUTH C. COWLES '24
Hartford, Connecticut

To the Editor:

President Robison stated in his inaugural address that college is "a place where there should be the greatest effort to teach ourselves to question and challenge each other in ways that are humane —in ways that foster intellectual and spiritual growth." In itself this is an excellent statement, close to the core of a sound liberal arts philosophy of education. I would like to apply this statement to Dr. Robison's inaugural address.

Unfortunately, much in the rest of his address refutes this fine statement. The entire first half of his address is an unconscious and pathetic parody of all the stale, sententious, sophomoric, hackneyed, sociological jargon mouthed about world politics by the half-educated, politicized, pseudo-educators of our time. In an inaugural address to a college community, a man who wished to "say something important," or "at least intelligent," should have avoided like the plague such irrelevant political subjects as civil rights, wars, and consumer discontents, while saying absolutely nothing about his philosophy of education. Or does Dr. Robison think that his becoming president of Middlebury gives him a mission to save the world from social injustice? I would have thought it was to provide the students of Middlebury with the best possible liberal arts education. What would have been more important in an inaugural address than to state his philosophy of education? Such a statement should precede any practical policy of administration.

His address, so politically oriented, so chaotic in organization, raises serious doubts in the minds of those who believe education should "foster intellectual and spiritual growth," whether President Robison himself needs more growth in these areas before he can discharge the responsibilities of his office "with integrity." A man truly educated in the liberal arts would never have allowed himself to get lost in such crude, sentimental and irrelevant politics. President Robison does not merely miss the bulls-eye; he doesn't even know where his target is.

In short, I agree completely with Kenneth M. Blount '68 (*Letters*, p. 33), that no one "gives a damn about Dr. Robison's personal feelings on detente, China, Vietnam or Russia." But I would add that every present student and faculty member at Middlebury, and every graduate, should be most concerned that President Robison should make himself crystal clear—in deeds as well as words—, that he is not just another politicized pseudo-educator, reflecting the overweening social consciousness of our corrupted politicians, but truly a man committed to the best traditions of the liberal arts. I assume that President Robison's belief that a college should "foster intellectual and spiritual growth" applies to all of us, including himself. I trust that he understands my words as a criticism of love to help make him a great college president.

PETER J. STANLIS, '42
Rockford, Illinois

ODD MEMORIES OF FIFTY YEARS AGO

Soundlessly snow-shoeing through the winter woods. • Sitting with a group on the bank of the Otter, singing to the accompaniment of a strumming ukulele. • Treats the chef at Battell gave the waitresses (brook trout for breakfast on the opening day of the fishing season when he started for Ripton Gorge about 1:00 am to bring back a creel full, or steaks cut off a particularly good piece of beef which he roasted for the rest of the students). • Being campussed by the Student Council for taking a turn around the dance floor at Lake Dunmore. • As a freshman, praying for rain in front of Pearsons. • The beautiful performance of *Candida* given by the Faculty Club at the town theatre with lovely Mrs. Hathaway as the heroine. • The hay ride up to Ripton on a wintry evening to square dance in the drafty hall. • Doc Ross and his long experience with homesick Freshman females. • Men were gentlemanly and treated women like ladies—such old-fashioned words. • Invited by the chef and his wife to their third-floor apartment to hear Galli-Curci's first American broadcast on their big-horned radio. • The total eclipse of the sun when the whole student body watched that black shadow race across the snow until all light was gone and there was a bitter coldness we would never experience again. • Professor Voter's demonstration of hypnotism at the first Freshman Chemistry class and "Red," who had volunteered, was told to swim and he tried to on the floor. • Public Speaking under Professor Davison in Old Chapel, standing on the platform with the class in the pews. • Dances in the Gym with the student orchestra, always hired for such affairs, beating out the current jazz tunes. • The collie Professor Longley bought after his wife died: she lay on the porch of his house in back of Mead Chapel and when he was through for the day, he'd step out of the Chemistry building, give a piercing whistle and down she would come, tearing across the campus to greet the man she loved. • Morning Chapel, and when it was Doc Harrington's turn to lead the service you could be pretty sure of the text, "Absalom, my son, Absalom" • Chasing all over hell and gone trying to recover our Senior canes stolen and hidden by that nefarious Junior Class. • The train trip to Cambridge with our football team, well-fortified by the guys from Wisconsin, to watch them tie Harvard 6-6.

Distance does lend enchantment . . .

Kay Abel Frasier '26
Greenlawn, N. Y.

Is History a ticking clock or an unfolding plot? Does it repeat? Or are all our yesterdays a tale signifying nothing? Can the past be judged without provincialism? Can a 20th-century intellectual find happiness with a 140-year-old philosopher? A conversation with Dennis O'Brien on

HEGEL and the Challenge of History

George Wilhelm Friedrich Hegel was never one of our favorite philosophers and when we learned that Dean Dennis O'Brien had written a commentary on Hegel's philosophy of history, we wondered why anyone in the last quarter of the 20th century would find Hegel's ideas still instructive. So we asked him:

O'Brien: I'd been teaching this particular work of Hegel's on the philosophy of history for a long time and I was particularly struck with the importance of his message during the late '60s and early '70s when we had a lot of campus radicalism. Hegel had been imported by the Prussian government to become professor of philosophy at Berlin in order to deal with student radicalism—that was a measure, I suppose, of an older climate when one would have thought of importing a professor of *Philosophy* in order to deal with student radicalism.

Q: He had been where, Nuremberg?

O'B: It was at Jena. He was listening to the guns of the Battle of Jena when he last put pen to the *Phenomenology*. But he taught in Berlin throughout the 1820's and '30's. The great event of the intellectual life of the time was, of course, the French Revolution—and then the Napoleonic era that came afterwards. And this story that he did put the last touches on his great early work, *The Phenomenology of Mind*, while the guns of the Battle of Jena were heard in the distance, is a kind of measure of the world in which he lived; his own work was in the *Phenomenology*—the great meditation about the meaning of Napoleon in terms of European experience, a sort of end-of-the-old-era of European nation-states, as he saw it. But the thing that interested me most, of course, is that Hegel in one sense is a great *anti*-revolutionary philosopher. And I was very struck with having to teach his thought about the way in which things change in society and in history, at the very time when so many people were advocating radical change within our own society.

I found myself very sympathetic, frankly, to his critiques of the radical views of his time—in the French enlightenment particularly: they struck me as being quite valid. I thought that many of the things that bothered me about student radicalism and radicalism in general, the ultra-Left in American society, really were things that bothered Hegel about the radicals of his own day, and I thought that Hegel's general views of the way in which historical change occurs were probably the right ones and that he'd done a particularly good job of articulating them.

He is both an anti-revolutionary philosopher on one hand, and the most revolutionary of all philosophers on the other hand! I think both of these things, curiously enough, obtain.

Q: Well, he saw himself as an anti-revolutionary, I believe.

O'B: Yes, he did.

Q: Marx took over some of Hegel's ideas about the Dialectic working itself out in history; is that mostly what you meant by saying that his thought is revolutionary?

O'B: Well, both Marx *and* Hegel from my standpoint are *anti*-revolutionaries compared with the thought that produced the French Revolution—the thought of the Enlightenment, of the French *philosophes*. The *philosophes* had an intellectual vision of what the Good Society was, and they thought that the problem for statesmen was simply to seize power in some way and then to implant this vision of Utopia, or the Good Life, or the Good Society, in "England's green and pleasant land", or in France, or wherever it might be. Somehow one could discover what the Good Society was supposed to be by a kind of inner meditation on the nature of man, and you hear all this in the language of the French Revolution: the Rights of Man, the Nature of Man; this is the way society must be. From Hegel's standpoint that is an unacceptable view of history because what it does is, it confines great washes of history to being sheer irrationality and madness. In Condorcet's *Sketch for the History of the Progress of the Human Mind* one can find, really, no rationale for the *ancien regime* or for the Middle Ages; Condorcet says that the people should read the history of the Middle Ages only so that they can be warned against the dangers of priestcraft. He sees no "reason in history") the title of the book that I'm commenting on). For Condorcet most of history is Unreason, it's *ir*rationality. Reason is something that the *philosophe* knows about: he discovers by a kind of scientific intuition what it is that the nature of Man in the Good Society *would be*, and then he has simply to apply it in a situation which is quite *ir*rational: he becomes a kind of a therapist, if you want, for history; he's a kind of a doctor who brings society back into health.

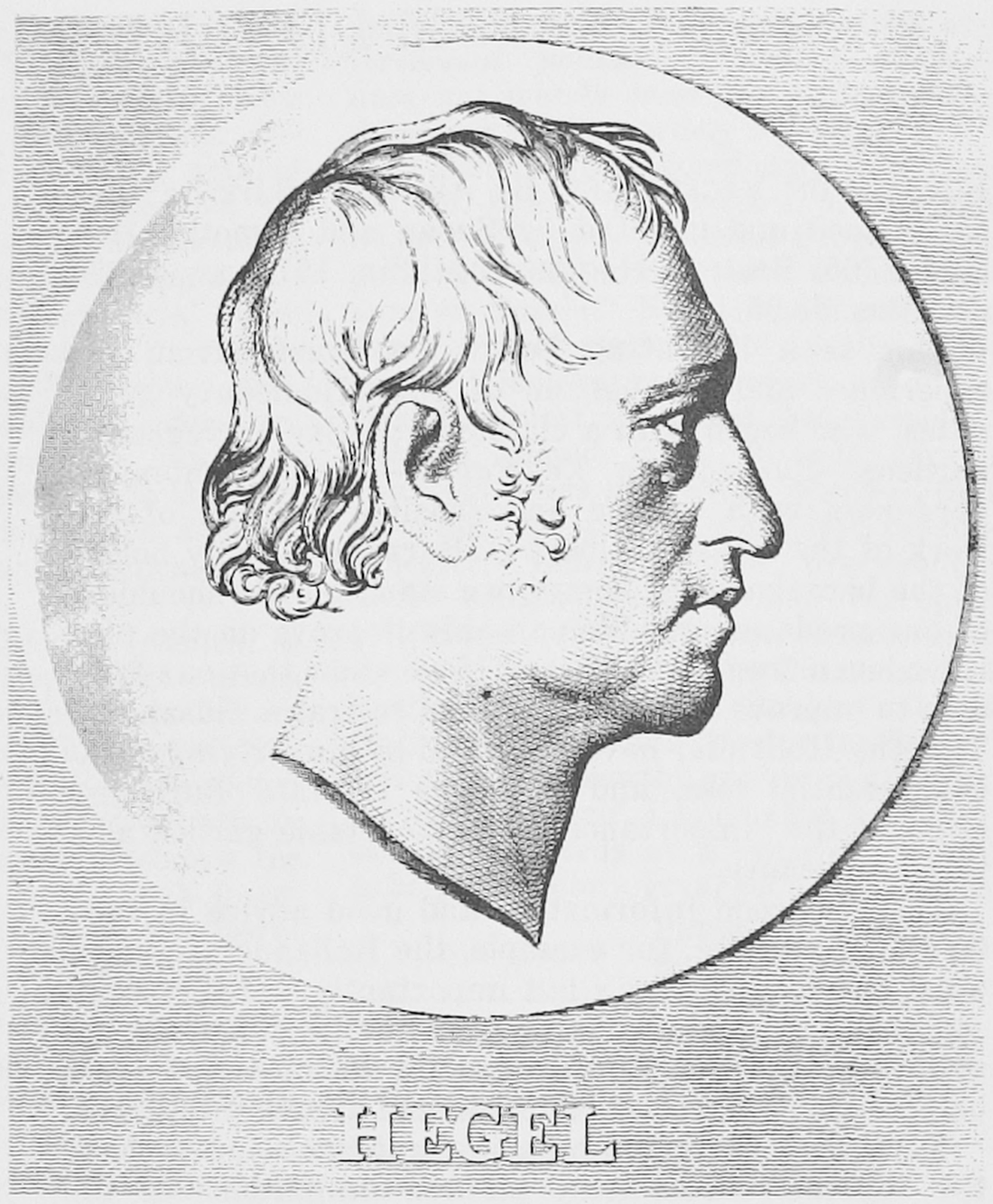
Now Hegel and Marx are both anti-revolutionaries in contrast with the *philosophe*. Instead of having a kind of doctrinaire, apriori view of what the Good Society is, they both think that the Good Society can only develop, as it were, through a historical *progressus*. You can't leap over stages in history. You can't suddenly move, says Marx, from a

O'Brien's pedagogical genius is that he knows perfectly well he can't hold our attention and really carry us with him if he simply retreats into Hegel's own involuted, impenetrable, Germanic terminology. So he starts by presenting the approach to the philosophy of history taken by perhaps the clearest, most easy-to-follow of contemporary theorists working in the Anglo-American tradition—Princeton's Carl Hempel. Very gently, always using common sense and ordinary language, O'Brien begins to explore those weak points in Hempel's account that would be particularly puzzling and objectionable to Hegel. What emerges from this juxtaposition of the two thinkers is the dawning recognition on the part of the reader that if we persist in reading the assumptions underlying our 20th-century approach to philosophy back into Hegel's comments relating philosophy and history, then we are bound to misunderstand Hegel's project from the beginning since his assumptions are not our assumptions. At this point we are three chapters and 44 pages into O'Brien's analysis and beautifully prepared to handle his deft presentation of just what Hegel's assumptions were.

Laying out those assumptions constitutes the task of the remainder of the book. And here O'Brien hits on the brilliant device of carrying, along with his presentation of Hegel's philosophy of history, a continuing analysis of how that presentation incorporates complementary principles found on the one hand in our 20th-century approach to the philosophy of science, and on the other hand, principles present in our understanding of the history of art. Parallels between the history of science and the history of art emerge initially as minor themes might pop up in a symphony, but as the development of the thematic material progresses, these themes reappear again and again with ever heightening relevance until in the final grand recapitulation they become major vehicles for conveying to us the full richness of the task that Hegel set himself when he undertook to write a philosophy of history. . . .

Dennis O'Brien has given us a clearer, more readable account than can be found in any other English commentary, of Hegel's attempt to solve the most persistent philosophical problem of them all, the problem of seeing man as a part of nature, but in such a way that we do not fail to do justice to him *qua* man.

DONALD W. SHERBORNE '51
Chairman, Dept. of Philosophy
Vanderbilt University



genuinely novel, that hasn't been seen before—and I think that's a very interesting idea. And that's really the general theme of the book.

Q: So you are impressed by some insights of Hegel in the area of historical interpretation, but that doesn't mean you particularly buy the logic or the metaphysics that other people have said was the underpinning of Hegel's thoughts on social philosophy?

O'B: I try to develop an argument in this book which follows the French Marxist commentator, Alexander Kojève. Kojève argues that Hegel is an atheistic philosopher, and there's been a great controversy about whether he should be so regarded or not; his wife had him buried in a Lutheran church and he did seem to think of himself in his latter days as being a Christian philosopher. For the analysis of this book I have tended to drop out all of the metaphysical and theological machinery, because it's almost impossible to develop, because of certain thought patterns we have, to develop a philosophy of history which preserves the uniqueness of historical reality—which I think really is the most important part of Hegel's view —and at the same time to have some sort of theological Backer for the whole business.

I tried at one point to use a metaphor in which I suggested that the standard view of all philosophies or theologies of history is that God or the Absolute Spirit has got it all wound up and this is all going to tick out and when it's all done, it's done, and therefore somehow the historical reality in which we participate is some sort of a dumb show. But then I developed a different kind of metaphor and say that God or the World Spirit is rather like a painter who, when he starts off to paint, has some sort of general idea of what he wants to do; but he doesn't really know until he faces each crisis in the painting, whether it's going to be red here, or blue there, or he may have to scrub out and scratch out, but when he gets all done, he'll sign it and say, "That's really mine". And I think that the second metaphor is a much better one for preserving the central insights of Hegel's views on history. That you can have a doctrine of the World Spirit, operating in such a way that world history turns out to be not just a boring, tooling-out of the thing that He's already thought of ahead of time.

Q: It's not all predetermined . . .

O'B: That's right. And yet it's clear that at every step it's within the control of a thinking Mind, in the sense in which a painter could say that "it doesn't happen accidentally"; you can see how every step happened one after the other, and why he decided to do this, and so forth, but it couldn't be predicted ahead of time.

Another metaphor that's sometimes used by philosophers of history who write in this way is that it's like watching a play: that at the end of the play, if it's a well-constructed play, you see how all the incidents really led up to the final conclusion and so it all hangs together in terms of a well-constructed plot. But a well-constructed plot does *not* mean that in the first act you could predict how it's going to end up at the curtain; in fact, that's the very definition of a badly constructed plot. But Hegel has tended to be read by a lot of commentators as if he were saying that the World Spirit is a chap writing a rather bad play and that if we could really have psyched it out in the second chapter, we would have known exactly who the murderer was before we got to the end.

Q: Okay, so one particular aspect of Hegel's thought about history that intrigues you is that there is genuine novelty in historical development. What other such insights of Hegel's do you appreciate?

O'B: Well, I think that that becomes a central insight from which all kinds of other things blossom out. There are a number of technical problems about the nature of historical writing that follow as a consequence of this approach. I try to locate Hegel's view of historical writing by contrasting it with the history of art, on the one hand, and the history of science on the other. The history of science is a history which has as part of its essential idea the notion of progress—which is part of the Hegelian view. That is, if someone were to write the history of science without noting the fact that over a long period of time, with lots of fits and starts and so forth, scientific knowledge has improved, you'd say, "Gee, that guy doesn't understand the nature of the enterprise because the very *point* of science is to put forward theories which can be corrected, tested, and improved."

Now if you contrast that to, say, the history of art, we *don't* tend to hold that as being one of the key notions in *that* form of human enterprise. That is, art objects are *not* presented in the context in which you say to the next guy, "Improve it!" There, each is unique unto itself; as Ranke said about history in general, "Each epoch is equally close to God". Well, that certainly wouldn't be true in the history of science: in the history of science, each epoch is *not* equally close to God—presumably it progresses and some are better than others. But one *might* say that about the history of art, and there is a tendency in reading the history of art to regard all periods as somehow of equal value—different styles, different gestures, different expressive contents, but all on an equal level.

Now I believe Hegel's overall view of history in general, real history, human history in its largest context, is a rather

stage of feudalism to a stage of communism without having to go through capitalism—which I think largely seems to be proven out by the experience in the Soviet Union, which is not a communist society but is a sort of robber-baron capitalist society.

Q: Do you think in Hegel's own view there was a great deal of social progress remaining to be made? Was he sensitive to social injustices, economic injustices? I got the impression that he was quite content; I mean, he had a good living as a professor . . .

O'B: It's hard to say. I mean he did write some rather liberal pamphlets. He was very impressed for instance with the British system of government. He wrote a lot about the British government and knew quite a bit about Britain. Some of his positions would seem to a modern eye to be quite liberal; some of them would seem to be arch-conservative. For instance, he wrote a long piece on the British Reform Act of 1832, opposing it. Now most liberal people think that was a very good change in British parliamentary practice.

He certainly was a person who *felt* very content. He used to think that reading the newspaper in the morning was a kind of affirmation of God's Will. I think most of us who've read the newspaper recently figure that, on the contrary, it's a kind of testimony to irrationality in the world. There is a certain sense of confidence in Hegel, that world history is God's march. But it's a terribly agonizing process—there's that, too, in Hegel. His whole idea of historical progress is not that people are getting happier and happier. He says, as a matter of fact, "The pages of happiness in history are blank". That history is "a great slaughter bench of moral ideals" and of the happiness of people and states. His idea of what constitutes progress in history is very strictly limited, I think, to progress in the realization of human freedom within political structures. That is, he doesn't think necessarily that history is going to be any happier over a period of time, but he thinks that history has shown and will show an increasing awareness of the freedom and dignity of individuals in society and that therefore, that's the direction in which you see progress. But freedom may not buy happiness; in fact, modern Existentialists—Margory Grene's book on the Existentialists is called "*Dreadful Freedom*"—believe that if you want to play the game of freedom, you're going to raise great insecurities and anxieties in people: you'll be a lot happier in a family situation, as a child, where you lack the kind of freedom that mature adults have.

Q: Which of Hegel's themes do you pick up on in your book?

O'B: Well, the book comments on the whole range of this one little work of his called *Reason and History*. It isn't really a book he wrote, but it's conventionally called that. It's the introduction to a series of lectures which he gave on the philosophy of history over a period of about 10 years in Berlin. This is the most widely read book of Hegel's in the English language. (The *Phenomenology* is a great big bulky thing; the *Logic* is awful reading, nobody really wants to do that; the *Philosophy of Art* has recently been issued in an edition which costs $99.) This one you can pick up for $1.50 in paperback. It's reasonably easy to read, and it's never been commented on, in any language. So I thought it would be useful simply to do a kind of modern commentary on this most-used and most-available of Hegel's texts.

HEGEL.

So I don't really zero in on one theme; I try to cover the whole business, but the main theme of my book is simply to insist that for Hegel, history is a peculiarly *human* kind of reality. The most egregious statement perhaps in his whole book is that "there is no history (in the sense of historical events), until there are people writing about history." Now that sounds absolutely nuts. Certainly we know there were people around before people started writing down things which we call history books. But I think it's one of the deep sayings in the book: that is, that the perception of human beings as peculiarly historical beings is a rather late invention in human culture. Many primitive societies tend to see individual human beings the same way in which we see individual carrots in our garden. That is, they're sort of all the same: we know that each one is a different physical being, but to be a good carrot is to replicate the general pattern of carrots. In history, that's not the case. You're Gregor Hileman, and I'm Dennis O'Brien, and when we *say* that, we don't mean to say that we're simply another instance of the general form of "human being". Somehow we believe that there's something peculiar to us as individuals, and that is the *historical* reality: I was born at a particular time, I will live a career which is unique, and in some sense noncomparable to that of any other human being. And to see that is to perceive reality, the human reality, as peculiarly historical.

Hegel says at one point, "The one lesson we've learned from history is that one never learns from history". That's always been taken as a kind of cynical comment, but it's a misunderstanding of what he's trying to say. What he's trying to say is, the reason we never learn from history is because history always comes up with something nuanced in a way which is really different. The old argument: Was the challenge in Vietnam like the challenge at Munich? Hegel would say, Well in a sense it isn't; it's like only Vietnam. That is, to try to apply the lessons of Munich to Vietnam is already to get into the wrong bag. You've got always to deal with historical reality in terms of the individual content. There'll be analogies, but if you really try to say, "Aha! it's Munich all over again", you've lost the show. So historical reality will always introduce something that's

SPORTS ROUNDUP

By Max Petersen

Halfback Ray Heffernan '78, rambling here against Williams, shows speed that earned him All-ECAC Division III team berth.

FALL SPORTS

After the string of successes by fall-sports teams in the past four or five years, this season's performance proved to be somewhat disappointing as a whole, despite some outstanding team and individual accomplishments in certain sports.

Women's field hockey and tennis teams kept their winning traditions intact with one of their finest overall efforts ever. However, the football and soccer teams failed to live up to preseason expectations, slipping a notch from last year's records.

The Panther harriers improved their mark slightly under new head coach Terry Aldrich; the fall golf squad had a mediocre season with a strong finish; and the B football and soccer teams saw their season records slip from the previous year.

The *football* team, with several returning veterans and some promising newcomers, seemed to have the material for another outstanding season, but somehow never put it all together. The Panthers started off with a win over the Colby Mules. Burned by its lack of consistency throughout the season, the Blue eleven then promptly dropped four of its next seven games to finish with a .500 record.

Halfback Roy Heffernan, a sophomore, kept alive the recent tradition of outstanding Panther running backs by finishing ninth in the nation among Division III rushing leaders and being named to the All-East team. Heffernan and center Steve Bouchard were assigned All-New-England ranking by UPI.

Soccer fortunes followed much the same route as football with similar results. Billed as a young team, especially up front, the Panther booters weren't expected to have an outstanding campaign. Much to the surprise of everyone, including Coach Tom Lawson, the youthful squad opened with a decisive 6-1 win over Concordia University (runnerup for the 1974 Canadian Collegiate title), and then battled powerful Springfield to a 0-0 double-overtime tie. Losing only once in its next four games, the Middlebury squad appeared on its way to an outstanding campaign until it ran into an undefeated University of Vermont powerhouse.

Although they turned in one of their best performances of the season, the Panthers lost that contest 1-0 and with it their momentum. Never really getting untracked after that, the team suffered back-to-back shutouts by Union and Plattsburgh in the final two games, to finish 4-4-2. With a little added maturity, the outlook is more promising for next year.

Although the women's A *field hockey* team tasted defeat for the first time in 35 games, it still turned in an outstanding 11-1-0 record (including post-season play). The squad shook off the 3-1 loss to Vermont and went on to win all three games over Fitchburg, Central Connecticut, and the University of Rhode Island in the North East College Field Hockey Association tournament at Kingston, R.I.

Seven Middlebury girls were named to the NECFHA all-star squad for their tournament play: they were Edie MacAusland, Ellen Fisher, Betsy Baetjer, Jennifer Cogswell, Debbie Daniels, Debbie Parton, and Kathy Weidman. Selected to the second team was Zoe Peterson. All played on the North East squad in regional competition with other associations. Two of the girls, MacAusland and Daniels, went on with the North East squad to compete in national play at the U.S. Field Hockey Tourney in Harrisonburg, Va. They will attend tryouts next summer for the US National Team.

MacAusland, who scored 65 goals in 36 games at Middlebury, was nominated for Vermont Athlete of the Month in November.

The *women's tennis* team turned in an outstanding 8-1 regular-season record and then went on to post a solid fourth-place finish in the New England Championships. Williams, the only team to beat Middlebury during the season, finished second in the New Englands. Top individual performers were sophomore Sally Lent, 10-7 in singles matches, and freshman Sara McNealus who was 7-4. With just one senior on the squad, prospects look bright for next year.

The *cross-country* squad was soundly defeated by Williams and Keene State at the start of the campaign before bouncing back to finish second in the Vermont State Meet. Finally beginning to hit its stride, the Panther squad took its next three meets to post a winning season.

Wendy Forbes' *golf* squad also got off to a poor start but as the weather improved, so did their game. They put it all together in the Vermont State Meet at Burlington and emerged as the upset winners of the state title. Another solid team effort in the ECAC tournament earned Middlebury an 8th place tie in the season finale.

delicate attempt to put together both of these models; that is, for general history (which for him is political history, the history of states) he doesn't want to buy the history-of-art model, because then you'd have to say, "Well, all states and cultures had been on an equal par", and one would be in no position to condemn the barbarisms of the past at all! You'd just have to say, "Well, the Nazi extermination of the Jews was no worse than the Spanish Inquisition—or the rape of the Sabines, for that matter: each was an expression of political aims peculiar to its period and culture."

So he wants to have some way in which he can talk about "better" or "worse" even if it's not "progress" in history; so he can't buy the history-of-art model. And therefore, he tends to sidle over into the notion that maybe history really is based on some sort of a progressive principle: that is, Why do we advance from one state to another? Why has the history of Western Europe since classical times seen the rise and fall of great states? Well, there are lots of possibilities: people got bored, got sick and tired of one civilization. Hegel doesn't think so; Hegel thinks that the reason that states have decayed is because they were failures in the way in which the theory of epicycles in astronomy was a failure: These states failed to solve the central human problem of the relationship between the free individual and the needs of society. And therefore they collapsed under the weight of their own intellectual, moral, and political failures. He then adds that he doesn't think that that's always inevitable. He doesn't think that the dilemma of the individual in society is something which is fixed and will never be solved and that, therefore, political history must be simply a history of various kinds of experiments in trying to solve that problem—rather like a painter trying to solve the problem of the painting of the nude. He thinks we really *can* learn from the past, in order to improve and do better. And that, in effect, has been what has occurred under all the terrible load of suffering and stupidity of history—that in some sense the conditions of freedom in society have improved over this very long historical period.

Now that's a very interesting view of what's been happening in human history and human society, and it also has implications for what the attitude of a historian should be, in looking toward the past. You see, you can write general history from the standpoint of the history-of-art model, in which you're simply interested in the vagaries and varieties of human behavior. Hegel would say that would be a deeply unhistorical attitude. It would be equally unhistorical to write general history in the way in which one would write the history of science, because the trouble with the history of science is that if, in fact, it's progressive, why don't we forget about the earlier part? See, a scientist doesn't have to necessarily know anything about his history: he doesn't have to know about Dalton or about Newton or anybody else; he can just start off with the latest journal and say, "Well, there's the truth. Why should I pay attention to all the mistakes of the past?" Well, Hegel really wants to say that in history we have to know history, we have to study deeply the life of the past in the way in which an art historian figures that in order to improve his taste, as a connoisseur, he should know as deeply and as richly as possible the artifacts of the past. They're irreplaceable to him. He can't say, "Let's start with Picasso and go forward." So Hegel wants to get that sense of going back and deeply appreciating the past, but at the same time he doesn't want to give it the kind of cultural relativism which you can easily build into that sort of model. So as a commentary on the sort of "moral attitude", almost, which a historian will inevitably bring to his material, I think Hegel has a lot that's very interesting to say. You can write books that are full of historical data but somehow, from Hegel's standpoint, lack historical sensibility.

Q: But since Hegel thought the Prussian state was the highest form of polity that had been developed to date, and he viewed China and Greece and Rome in comparison with modern Prussia, isn't he guilty of a kind of provincialism?

O'B: Yes, there is a danger in that kind of history, obviously, of discounting and sort of devaluing the past. But then there's also a danger, it seems to me, in over-romanticising the past. (I've been reading a book called *The Good Old Days, They Were Terrible.*) And Hegel didn't do that, he didn't make that mistake either; he *didn't* think that all epochs were equally close to God.

Q: He says you have to take some kind of moral stance and make a judgment?

O'B: Yes, but he wants to say that when you take a moral stance, you don't take the kind of a moral stance that you've got in the people like Kant and the earlier Enlightenment people who say, "Look, we *know* what morality is. That's been revealed in the Ten Commandments, in the Categorical Imperative, or by some intuition of the nature of Man." And then you go along and you grade all the states of men in terms of whether they come *up* to that moral standard and if they haven't, then that's too bad. Hegel can be much more appreciative of the past by saying, "This is all that this society *could* have done; they made, in a sense, the right decisions for themselves within the context of their own culture." So you don't look back and look down your nose at them. Hegel's is the kind of appreciative criticism we get when we do art criticism of past artifacts. So he isn't the sort of apriori moralist who's just grading all this material. He says, that's the best they could have done. And he's not patronizing; it was a necessary stage that they had to go through.

Now, at the same time, you don't then take that necessary stage and say it's just as good as something else. It would be like, you know, Piaget and a lot of the other developmental people that say, "Look, don't condemn the child because he's not an adult. This is the best he could do. There's a unique value in it; you can't leap over this stage of six-to-eight." But nevertheless, it *is* only the stage of six-to-eight; you don't say that that's on an equal par with adulthood.

Q: I hadn't realized Hegel was that tolerant.

O'B: In one paragraph he'll go back and forth between being extraordinarily tolerant and extraordinarily intolerant. Because he's trying to do a double-edged job, you see: both appreciate the quality of life and the unique kind of values that somehow, you know, only the child of six to eight can enjoy. That child, given his own very limited view, can appreciate some things in a way that you and I can't, no matter how much we try to imagine we can project ourselves back; we now know too much. So you have to somehow capture that innocence and loveliness of that particular stage, but at the same time, don't foolishly romanticize it and say, "It's just as good as some much more developed stage"—which has losses but nevertheless is still somehow better. □

Craig Ward, who was doing well until forced to withdraw from competition because of an illness, and junior Brant McDougall, who missed a slot on the Canadian Olympic team, but made the Canadian National Team.

Combining its solid cross-country squad with such talented alpine performers as Leslie Orton, Tina Besse, and Sara McNealus, the women's squad established itself at the beginning of the Carnival circuit as the team to beat by taking the St. Lawrence Carnival title. Despite two more wins at Colby-Sawyer and the University of Maine, some pundits at Dartmouth weren't too impressed, claiming that two of the Big Green's best women skiers had missed those meets because of illness.

But Panther women came through with an outstanding performance at Dartmouth's Carnival, skiing to a decisive 11-point win over the Big Green's finest. Getting stronger with each meet the Middlebury girls breezed to the Eastern title and proceeded to win the first National Women's Meet at Boyne Mountain, Michigan.

Hampered by the loss of several male skiers who didn't return to school and by injuries to top alpine performers John Jacobs and John Giebink, Middlebury's new head coach, Terry Aldrich, faced a real task of making the team a top contender again this year. Running behind Vermont and Dartmouth all season, the Panthers were in better shape going into their own Carnival and the Eastern Championships: Ward and McDougall were back on the cross-country squad, Giebink had recovered, and sophomore alpine ace Peter Kenney was back in school and skiing. However, the added strength wasn't sufficient to offset the leaders' superiority in jumping.

Depending heavily on young skiers this winter, Middlebury showed real promise for the future: sophomore Mark Cater emerged as a leading giant slalom specialist, Kenney was strong in slalom, and freshmen Phil Mann and Greg Waters as well as sophomore Peter Ross gave notice they will be tough to beat in cross-country.

BASKETBALL

Feeling the loss through graduation of Dave Pentkowski and Dave Davidson, the Panther basketball team also had to depend heavily on its young players. Although it took some time to work them into the lineup as starters, five freshmen gave Middlebury good depth and made the difference in several games.

Playing good defense but lacking a consistent scoring attack, the Panthers

Panther Leslie Orton '77 from Laconia, N. H. cleanly negotiates a gate on way to her 6th-place finish in the giant slalom at the Eastern Championships at the Snow Bowl. On opposite page, sophomore Pete Rivoira (white jersey) wins a tap during 91-66 rout of Williams. Awaiting ball is No. 22—Midd's all-time leading career scorer, Kevin Cummings '76.

70% of finest collegiate women's ski team in US pose with part of this year's haul of silver; front row, Sherrill Anderson '79, Nellie Krakoff '78, and Sara McNealus '79; rear, Coach Charlie Brush '69, Ellen Hall '78, Leslie Orton '77, Tina Besse '77, and Pamela Richardson '78. The missing 30%: Mitzi Cain '79, Ruth Baxter '79, and Jennifer Caldwell '79.

VARSITY FOOTBALL
(4-4-0)

Midd		Opp
28	Colby	20
0	Wesleyan	13
42	W.P.I.	28
0	Williams	22
48	Hamilton	0
20	Trinity	21
8	Norwich	13
47	Union	15

FRESHMAN FOOTBALL
(3-2-1)

27	Norwich	24
7	Plymouth State	9
6	Albany State	7
28	Williams	28
20	Dartmouth	6
50	Union	0

SOCCER
A Team (4-4-2)

6	Concordia University	1
0	Springfield	0
1	Dartmouth	3
3	St. Michael's	1
1	Norwich	1
1	Williams	0
3	Amherst	0
0	Vermont	1
0	Union	4
0	Plattsburgh	3

B Team (2-4-0)

4	Norwich	2
1	Williams	2
0	Vermont	3
4	Dartmouth	2
5	Union	0
3	Vermont	1

CROSS-COUNTRY

Midd		Opp
44	Williams	15
50	Keene State	15
	State Meet	
52	Vermont	19
	Norwich	101
	Johnson	102
	Castleton	155
	St. Michael's	159
47	Coast Guard	38
	Amherst	42
25	Union	30
	Johnson	52
21	Castleton	57

NESCAC—1 finished in 7th

Easterns—No score for Middlebury

WOMEN'S FIELD HOCKEY
A Team (8-1-0)

8	Castleton	2
5	Williams	1
4	Skidmore	1
3	Keene State	2
2	Union	0
6	Vermont	2
4	Green Mountain	0
6	Vermont College	0
1	Vermont	3

NECFHA

5	Fitchburg State	0
6	Central Connecticut	1
3	U of Rhode Island	0

B Team (5-0-1)

9	St. Michael's	0
1	Williams	0
2	Plattsburgh	0
1	Colby-Sawyer	1
1	Vermont	0
1	Johnson State	0

WINTER SPORTS

Following last year's winter sports performances, the finest overall showing in many years, anything less would have to be called a let down. Although it appeared in November that Middlebury had the talent for another successful season, Panther teams failed to live up to their advance billing and turned in only mediocre records on the whole.

The one exception was the *women's ski team*, which swept all opposition in the East and was to prove itself the finest in the country. The squad was deep in talent and included three US National Team members.

Winners of the Eastern title in competition at the Snow Bowl, the Middlebury girls went on to top the nation's best teams at the national intercollegiate women's meet at Boyne Mountain, Mich.

In fairness to the men, it should be pointed out that they also did a good job in Eastern skiing. Competitive in alpine events and cross-country, the Panthers were unable to match Vermont's and Dartmouth's imported jumping talent from Norway. But the team finished third in the Eastern Championships at Middlebury to earn a berth in the NCAA meet, hosted by Bates College this year. There they finished 6th nationally, in a field of 11.

Panther *basketball* had an up and down season, but showed some real potential for the future with a strong finish, which included a 93-76 upset of St. Michael's in Division II. Consistency of play and the ability to pull out the close ones—elements necessary to a successful season—seemed to be lacking earlier in the campaign.

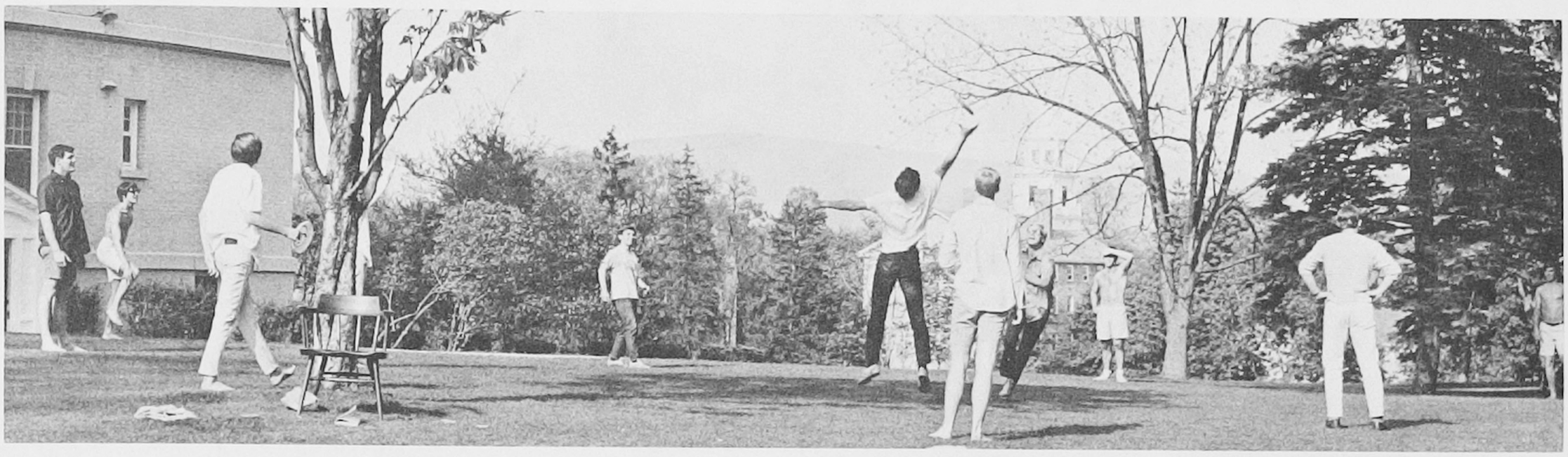
The varsity *hockey* team, with several returning veterans including All-American goalie Jim Brimsek, was picked in preseason polls as one of the top contenders in Division II. Although the team got off to a good start, it hit a post-holiday slump which proved damaging to playoff chances despite a strong stretch drive.

"B" hockey followed a reverse course. Starting slowly, the young skaters caught fire and went on to post a highly respectable record.

SKIING

This being an Olympic year, the availability of several Panther skiers for collegiate competition was in doubt until after the Olympic trials. Three Middlebury women cross-country runners were trying out for the Olympics and US National Team. Junior Terry Porter was named to the Olympic squad and skied at Innsbruck for former Middlebury coach John Bower. Kathy Anderson just missed surviving the cut and Katie Tobey took time off from school to ski with the National Team. Other National Team members, freshmen Ruth Baxter, Mitzi Cain, and Jennifer Caldwell, all entered Middlebury and were with the Panther squad all season. Men cross-country runners in the Olympic trials were senior

The Frisbees are Flying—it must be Spring!



Did these antics really begin at Middlebury (and should we admit it)?

Fads in toys sweep the land like successive ripples on a flat beach and few, like the hula hoop, outlast a single season. Fewer still span two successive generations as, for example, the teddy bear, the Ouija board, the Yo-Yo, and the Frisbee.

The Yo-Yo came whirling out of the mists of antiquity around 1800 (it was a popular diversion of Napoleon's troops) and has known an up-and-down popularity ever since. It made Donald Duncan, who copyrighted the name in the 1930's, a millionaire and millions of Yo-Yos are still sold to 12-year-old boys each year. The teddy bear was born, of course, while Teddy Roosevelt was riding high and the Ouija board was the craze of the Flapper Era.

By comparison the Frisbee is a Johnny-come-lately. The first Frisbee skimmed earth's atmosphere, we believe, above a midwestern cornfield in 1939 and both skimmer and catcher were Middlebury students. "Frisbee" was evolved from the name stamped on the metal pie tins of the Frisbie Pie Company of Bridgeport, baker of "Mother Frisbie's Pies."

Acting on a tip from Manhattan book publisher Paul Ericksson '40, we asked the other three surviving witnesses of the event for their recollections. Herewith two replies. The first is from Elbert Cole, Jr. '40 of Palo Alto.

"Thank you for your interest in the "true story" of the Birth of Frisbie. The background was a trip to the DU National Convention in Lincoln, Nebraska in September of 1939. Those attending were Dick Barclay '40 (killed in World War II), Pete Evans '40, "Hawg" Gale '41, "Togo" Eriksson '40 and "Mole" Cole '40. The transportation was a '31 Model A touring car which burned as much drain oil (at 5¢ per quart) as it did gasoline. The scene was a Nebraska cornfield. Dick and Pete were changing a flat tire; "Togo" watched. "Hawg" came upon a deserted Frisbie pie pan quietly lying between the rows of corn, just waiting to make history. He picked it up, spun it to me and yelled "Frisbie!". And thus the name was on the game. "Togo" joined in and we shot the pan a few million times on the rest of our trip and brought it back to the campus.

"That fall at Middlebury [1939] the air was filled with flying pie pans, every size and shape. Grade-point averages dropped, football attendance suffered, and all stores were out of pie pans! The next summer Frisbie spread. Jerry Cole '39 brought it to Camp Timlo near Lake George, and other counsellors took the game back to Williams, Amherst, Brown, etc. In the fall of 1940 I lived in Bridgeport with Jim Cornwall '40 and family. The president of the Frisbie Pie Company lived just down the street. He was delighted to have such a great game bear his name until I put a big scratch on the door of his new black sedan with a poorly thrown pan. [*He must have had mixed feelings, too, about the company's 5,000 never-returned pie tins as the fad began to take off.*—Ed.]

"In 1942 I tried to interest Remingston Arms Research Department in the Frisbie as a post-war sporting item, but they couldn't get used to the idea of not shooting at it.

"Several significant modifications of Frisbie evolved. Phyllis Cole '51 invented

showed their youth by dropping season openers to Union and AIC. They were impressive in the Central Connecticut Tournament, but after that seemed to lack maturity, especially on the road where they lost six of seven games.

Nearly unbeatable on the home court, Middlebury posted upsets of Colby, one of the top 10 Division-III teams in the country, and of Williams and WPI.

Both Panther co-captains, Dave Nelson and Kevin Cummings, supplied individual excitement during the campaign by topping the magic 1,000-point plateau in career scoring. They were only the fourth and fifth Middlebury players in history to do it. In addition, Cummings became the all-time leading scorer by breaking Pentkowski's mark of 1,131 set last year.

HOCKEY

Showing some of the form that carried them to the ECAC Division II semi-finals last year, the Middlebury skaters won four of their first five games. Included in the string was the first win over the University of Massachusetts since 1970. But with the offense having problems scoring and goalie Brimsek not up to his usual form, the Panthers nosedived into a four-game losing streak from which they had trouble recovering.

Following the national trend this year, coach Wendy Forbes started a youth movement of his own by dipping into the freshman team for an entire line and one other forward. At the same time he tapped sophomore Bob Lloyd as his starting goalie to complete the new look. Although his strategy paid off, and freshmen scoring was a factor in more than one game, Middlebury continued to allow too many goals. The team's failure to regain last year's form can be attributed to personnel losses, injuries, a late start in practice because of a lack of ice, and a month-long layoff during the holidays.

"B" hockey, led by Dennis Dailey and assistant Fred Erdman '75, posted a successful season by winning the close ones. Coming through in the clutch, the young Panthers escaped three straight overtime games with two wins and a tie. One of those victories was a come-from-behind 4-3 decision over Dartmouth. □

Peter Prescott (12) from Montreal flicks puck past Boston State goalie.

VARSITY HOCKEY
(11-10-0)

Midd		Opp
12	College Militarie Royale	0
3	Bishops University	2
0	Salem State	3
3	U Mass	1
4	Hamilton	2
3	AIC	4
0	Vermont	7
4	Union	11
11	Alumni	7
7	Williams	10
10	Wesleyan	3
4	Amherst	1
6	Norwich	9
6	Boston State	1
8	Colby	2
4	Bowdoin	9
3	St. Anselms	8
9	Babson	3
4	Vermont	9
8	Williams	6
10	Bishops University	4
7	Norwich	4
3	University of Lowell	5

"B" HOCKEY
(7-4-1)

Midd		Opp
3	Northwood (OT)	4
5	Kimball Union (OT)	4
6	Northwood (OT)	6
4	Dartmouth	3
6	Deerfield	1
1	St. Michael's	5
4	Norwich	2
3	Williams	5
1	Westminster School	5
6	Norwich	3
1	Lake Placid Jr. A	4
1	R.P.I.	4

VARSITY BASKETBALL
(12-11)

Midd		Opp
48	Union	63
41	A.I.C.	45
83	Castleton	48
74	Brandeis	76
73	W.P.I.	71
63	Coast Guard Academy	45
52	Clark	57
78	Univ. of Lowell	66
91	Colby	75
55	Plattsburgh State	47
102	W.P.I.	81
81	Norwich	94
91	Nichols	69
59	Trinity	71
91	Williams	66
58	Tufts	65
54	Bowdoin	63
54	Bowdoin	63
54	Vermont	81
69	Amherst	75
68	Bates	66
93	St. Michael's	76
100	Norwich	62
52	R.P.I.	65

MIDDLEBURY'S CARNIVAL STANDING

MEN'S SKIING

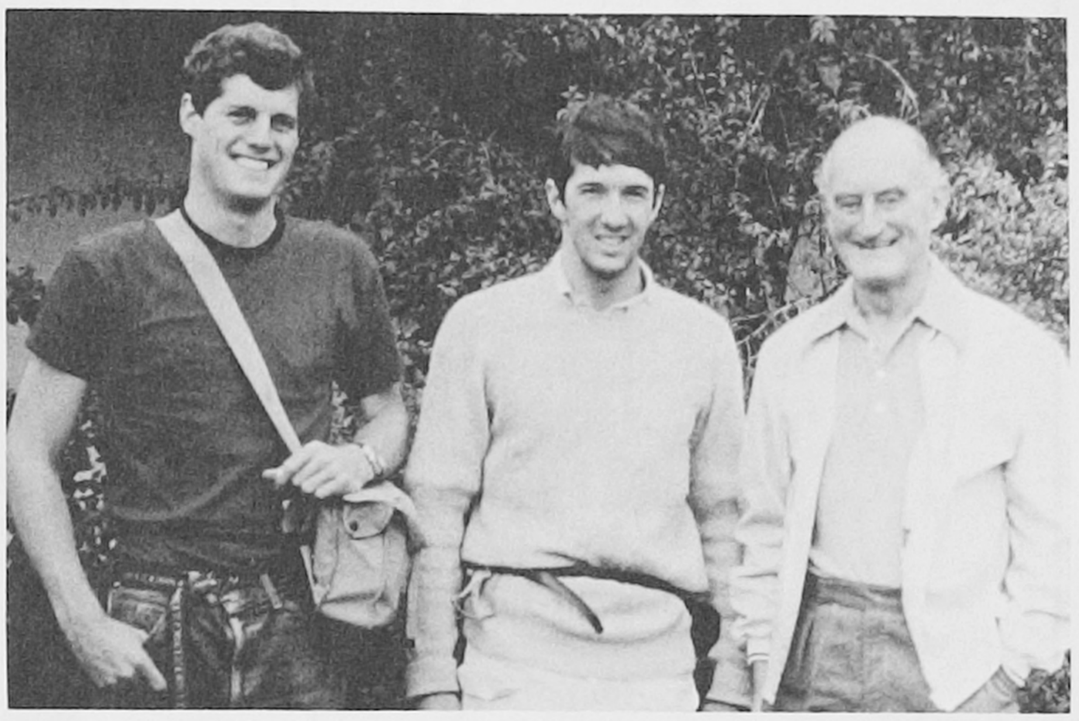
St. Lawrence Carnival	2nd
Vermont Carnival	3rd
Dartmouth	3rd
Middlebury Carnival (E.I.S.A.)	3rd
NCAA	6th

WOMEN'S SKIING

St. Lawrence	1st
Colby-Sawyer	1st
University of Maine	1st
Dartmouth	1st
Middlebury (E.I.S.A.)	1st
Nationals	1st

Kilimanjaro Diary

By George Crossan Seybolt, Jr. '77



Before climb, Seybolt and friend Ernie Santin (UVM '76) pose with Norman Palmer, vp of Mountain Club of Kenya, who wrote the climb guide book.

July 11

We cleared Tanzanian customs with a medium amount of hassles and prepared ourselves for the worst. The road deteriorated completely. We had a bad rattle but one good stone stopped that and also broke the odometer, gas, temperature and amps gauges, i.e. all the instrumentation except for the speedometer which we didn't really need since we never went faster than 30 m.p.h. Although it was a "bit of a rough ride" we saw some interesting scenery as we passed through an area of heavy coffee and banana farming.

We finally arrived at the Marangu Hotel to see four *really* weary, sunburned, foot-sore people limping towards the terrace. Mr. Palmer, in his British way, had one comment, "Some people just off the mountain". We met Peggy, the owner of the hotel, had a good dinner and went to bed, thinking of tomorrow, Day #1 on Kilimanjaro.

July 12 *Marangu Hotel to Mandara Hut (9,000 feet)*

Our party consisted of 4 Italian professionals, 12 tourists, 5 guides and 30 porters. The Italians were going on a 7-day climb. Before they left I watched them fill their canteens with whiskey; well, they seem to know what they are doing. We didn't get off until noon, but we started in a good spirit; we obviously didn't know what lay waiting for us. The first part of the trip was along a gravel road that ended at the Park gates. As we walked along we talked with our fellow lunatics and found them to be a group of Danish engineers working in Dar-es Salaam. They set a grueling pace which Ern and I found hard to keep up with. What had we gotten ourselves into? The sun shown continuously. We were hot, hungry, and the road didn't look like it was going to end.

At last the gate and some food and drink. The Italians were already there having some kind of hassle with the guard. One had brought a pair of skis but apparently a Japanese man had tried the same and got killed. He explained that he was a professional instructor and they let him proceed. When the guides and porters caught up we were informed that we had done 5 miles in 2 hours and that the pace was much too fast. After a lunch of 3 sandwiches, a banana, an orange and a couple cups of tea, we set out on the climb proper. Immediately we were in dense forest except some of the taller trees were festooned with Spanish moss. Undergrowth obstructed any sight off of the road. About halfway the road ends. Being the only cleared area, the rain runoff tends to use the road as a channel, cutting deep ruts spotted with holes. The ruts averaged 4-6 feet deep with some of the holes well over 10 feet deep. Ern and I came up with the idea of running this in Kayaks in the rainy season.

About 4:00 it started to fog up a bit as we reached the cloud layer. As the clouds got heavier the forest stopped and we entered a field of unknown size. I really felt like I had stepped out of a time machine. I turned around and watched a string of porters emerge from the forest followed by the Danes. Each porter carries one duffel bag weighing 60 pounds on his head, no hands. Some were swinging hurricane lanterns as they walked along. The food porters also carried the wooden boxes atop their heads, the only padding being a banana leaf rolled into a halo.

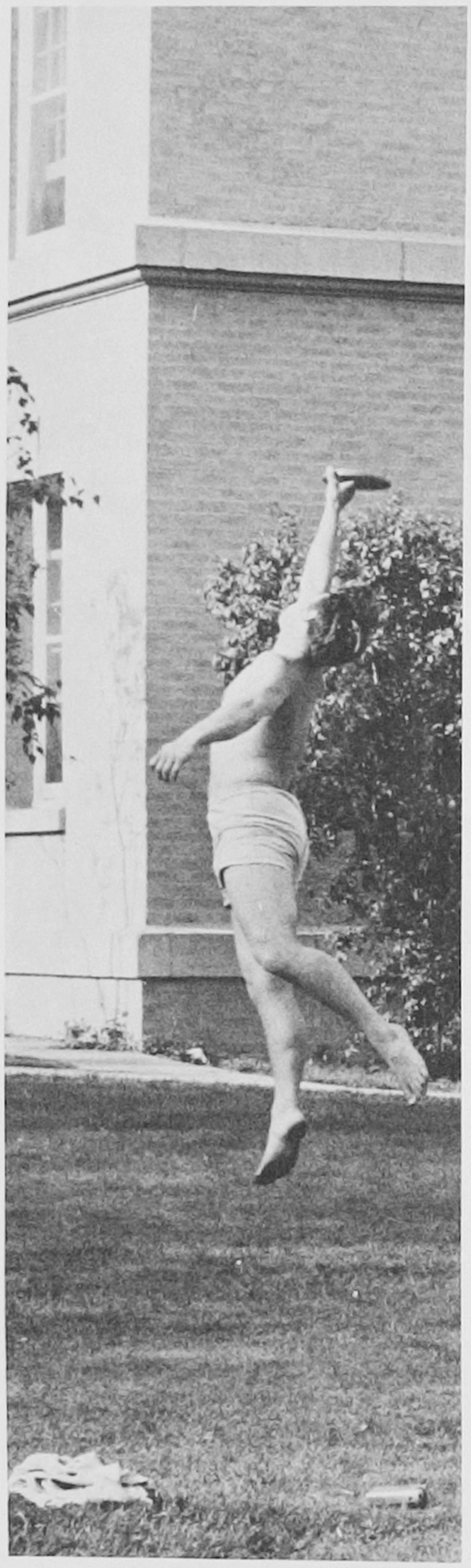
We finally caught a glimpse of the hut, set on the edge of a dense rain forest/jungle and what looked like a couple of thousand feet above us. It disappeared into the clouds again and we continued on, feeling pretty good because the 1st day was almost over. We reached the hut at 5:45 and immediately downed a beer (yes, beer and Coke at the 1st hut—unfortunately *only* the first hut. Dehydration was one of the worst problems). We changed into long pants, down vests and ski hats. We were both starving, ready for T-bone steaks. Fat chance. Peggy had to buy half our food on the black market. We had to wait an hour and a half for dinner and by that time Ern had fallen asleep once; fatigue had set in. I lost my appetite, all I wanted to do was go to bed. Right after dinner, about 9:00, we did.

12 miles, from 4,500 feet to 9,000 feet in 5 hours 45 minutes; not a bad day.

July 13 *Mandara (9,000) to Horombo Hut (12,354 ft.) with side trip to Mawenzi Hut (ca. 15,000 ft.)*

Woke at 7:00 to find the hut in the middle of the cloud layer. Had a good breakfast and got prepared for the 10 mile hike to Horombo hut, our next stop.

Due to the clouds, we all wore raingear of some sort and it got hot very quickly. The forest was the closest I've been to a jungle. Huge ferns, tangled underbrush dripping with moisture. The footing was really slippery so we hopped from tree root to root, occasionally pulling a real balancing act. Unfortunately, the jungle/forest didn't last long and we were out in the open again but still in the cloud layer. In these open fields we started running into people coming down the mountain. One girl was literally staggering along with glazed-over eyes,



"Multiple Friz": Three identical pans are thrown nested together. They stay together for a while but then go their separate ways —it's hard to catch all three at once! . . . Metal pans have broken ten thousand fingernails. Also, a bent rim could be straightened only so many times before it cracked, leaving a jagged, blood-letting edge. Scars are many amongst those who loved the game in the pre-plastic days.

"So much for some of the early lore. I'm sure kids have flipped pie pans since pies began. But "Hawg" Gale put the name on the game lo these thirty six years."

The other letter is from Bob Gale '40, who now practices medicine in Littleton, New Hampshire:

"As you know I was a member of the group that went to Lincoln, Nebraska in September 1939. As you have no doubt been told several times, the fifth member of the group was Dick Barclay who died in World War II. I distinctly recall playing Frisbie on the trip, particularly in a corn field somewhere in the mid-west. The trip was the summer between my sophomore and junior years whereas the other members of the group were all one year older in an academic sense. During my last two years at Middlebury, Frisbie gained rapidly in popularity. Many of the details are hazy in my mind but I would say definitely that Paul Ericksson was one of the originators if not the originator of the sport at Middlebury. I realize that the subject has come up in sport literature occasionally, particularly during the last ten to fifteen years, and I cannot say whether or not evidence that Frisbie was played elsewhere before 1939 has been documented.

"As far as the trip itself is concerned, perhaps the most amazing thing is that we had no serious mechanical problems with the old Model A. We spent several nights out in the open and, not having air mattresses, did not always sleep exceptionally well. On the return home we stopped at the World's Fair in New York. I recall the trip with great fondness. I am sure that any of the comments that Mole Cole might make about any of us drinking any beer at any stage of the trip are unquestionably a figment of his imagination."

In Los Angeles Fred Morrison improved on the pie tin design in 1948 and sold the patent some years later to Wham-O, the toy maker who would later score with the Hula-Hoop. Wham-O first marketed their plastic flying saucer in 1957, and by now has paid Morrison nearly $1 million in royalties. A New York Times Magazine story (8-11-57) reported that Frisbie took off among Ivy Leaguers immediately, and that the sale of $1500 worth of Frisbies to Princeton alumni at their June '57 reunion helped send the Tiger 150-pound crew to the Henley regatta that year.

Wham-O sponsored the International Frisbee Association (now 70,000 strong) whose principal get-together is an annual IFA "Guts Frisbee" Championship, held in the Upper Peninsula of Michigan. (Three years ago it moved down to Houghton.) Guts Frisbee is played by five-man teams which face each other across a 15-yard "no man's land" and fling a single Frisbie at each other with as much speed and guile as they can manage. The Frisbie may be spiked like a volley ball but must finally be caught one-handed and immediately flung back. Twenty-one failures by either team loses the game. More than 50 teams from the US and Canada have competed in recent years.

If any reader can substantiate a prior claim to paternity for this mania, we hope to hear from him. Meanwhile Middlebury must bear manfully its responsibility as the birthplace of these dervish antics. □

July 14 *Horombo Hut (12,354 ft.) to Kibo Hut (15,420 ft.)*

We rose quite late, 8:00 am, because it was quite cold. We had our last decent breakfast and set off for the saddle and Kibo Hut at 8:27, once again in the clouds. We developed a good pace and made it to the lip of the saddle in 3½ hours, but the worst was yet to come.

After a lunch break, we set off to make the descent to the saddle. We did this at a fairly good clip because both Ern and I felt pretty good. The sun was strong but there was a good breeze to keep us cool. The saddle is a desolate desert, nothing but a gravel-sand mixture sprinkled with volcanic rocks and boulders. The path winds through these rocks and due to the clarity of the air, distances are difficult to judge (are they ever!). About half way across (2 miles) our pace slowed down; we rested more often and we both started to feel terrible. We would walk 50-60 yards and then sit down on a rock to rest, the wind whipping around us and the sun beating down mercilessly. When we stood up, our heads throbbed and everything spun around for a minute. When this nauseating sensation passed we would start plodding on again. About then I noticed that the backs of my hands were awfully red—thoughts of sun poisoning mixed with my throbbing headache was making me feel rather ill.

At the last major pile of rocks—less than a half mile from Kibo Hut, we lay down in the shade to rest. The huts could easily be seen with people moving about outside. By now our heads were really splitting. It took us forever to make it that last bit. The whole time, Kibo hung over us with that ribbon of a path going straight up—the next morning's work, if we lived that long. We finally made it to Kibo Hut, four hours after we had stopped for lunch, about 1 mile per hour. By then I felt like I had the worst hangover of my entire life and I still had the worst part ahead of me. Ern and I choked down a bowl of soup and some canned peaches, the only thing we could keep down, and that just barely. We climbed into our bags (without our shoes) and lay there. We started to laugh but that made the pain worse. As long as we lay absolutely still, only our heads hurt. It was now 7:00; we would be awakened around 1:00. Groan!

July 15 *Kibo Hut to Gillman's Point and Return via Kibo Hut to Horombo Hut*

A quote from *Guide Book to Mount Kenya and Kilimanjaro*, by the Mountain Club of Kenya:

> "Parties usually leave Kibo Hut very early (by 3 a.m.) for the following reasons: (a) to get the benefit of frozen scree, (b) to get a view of the sun rising behind Mawenzi from high up, (c) because it is quite a good thing not to be able to see the stretch of scree ahead of one, and (d) because one probably cannot sleep in any case."

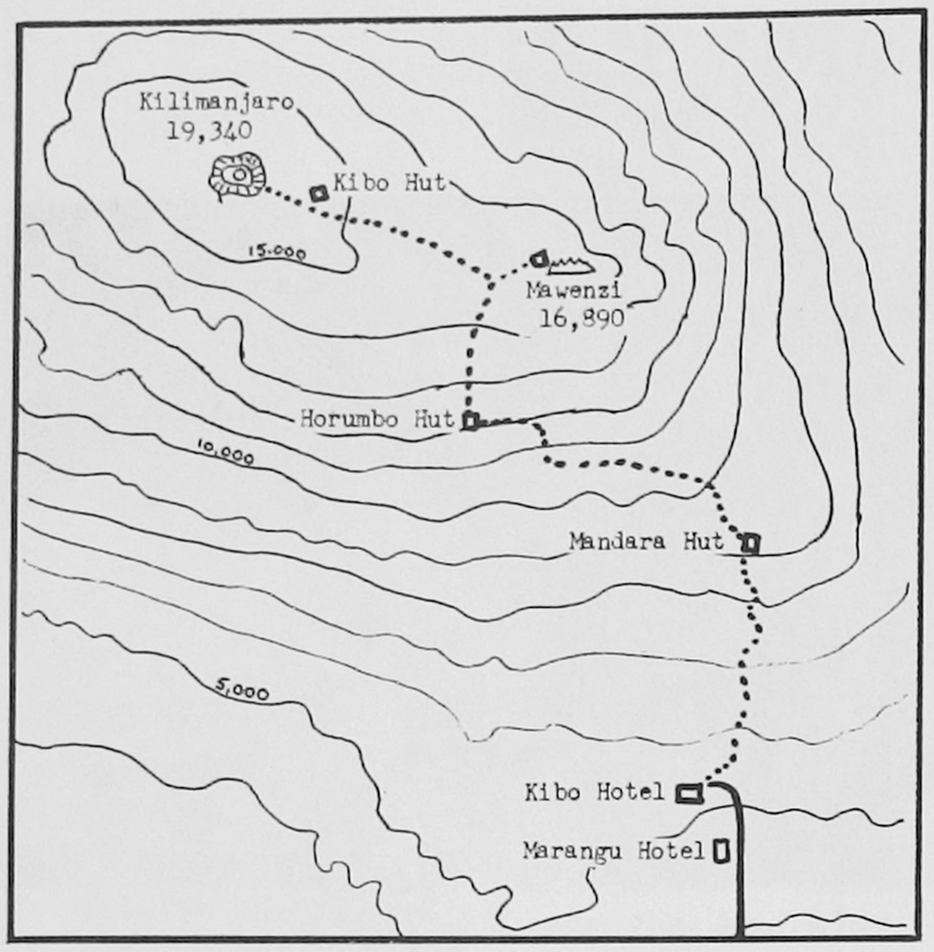
The guides came and beat on the doors at 1:00 a.m. He didn't have to knock very hard, Ern hadn't gotten any sleep at all and I slept poorly for about an hour. It was pitch dark and cold. I dressed slowly not caring how the cold nipped my naked limbs, I felt so bad. On my torso went a T-shirt, reversible (double-layer) cotton shirt, turtleneck, wool C.P.O. shirt, wool navy sweater, down vest, and a windbreaker. On my legs, two pairs of pants (one flannel-lined); on my head, a wool balaclava with a wool ski hat on top. Ern dressed as slowly as I did and we staggered out of the hut, around the corner, and vomited. After that the soup or tea didn't look too appetizing, our heads were split down to our navels, i.e. we both would have liked to die right then and there. We assembled, the 14 climbers and the 5 guides with lit hurricane lanterns. Ern could barely hold his head up and was leaning heavily on a rock. The guide asked us how we felt. I replied, "Terrible" through clenched teeth. My head was spinning and I felt a great need to get sick again. So, feeling really chipper, we set off. About a hundred yards later, Ern said, "Bolt, I can't make it! I'm going back," and he disappeared into the night, heading down the hill. I was feeling a little better so I decided to continue. A while later 2 more people turned back. I climbed with a Dane named Erik.

The scree is a combination of loose sand and gravel on a 45° slope. Often a step forward would be finished by sliding halfway back. I found by walking super duck-footed and taking a stride of 3-4 inches, this sliding was cut to a minimum. Our legs didn't get tired but our hearts were pounding like crazy. I was hyperventilating the whole time; this seemed to cut down the nausea and headache. So we would plod on, 3-4 inches to a step, for maybe 15-20 feet and then stop and lean on our walking sticks, breathing as deeply and slowly as possible. Walk for 20 feet, rest for 2-3 minutes, walk another 20 feet, rest for a couple of minutes. So it went, neither looking up or around, just at our feet and concentrating on deep breaths. I didn't dare sit down because it would have been really difficult to find the energy to regain my feet. Any puff of wind stopped me dead and almost bowled me over backwards. Time didn't mean a thing; it just passed. The only thing that mattered was my next step and filling my lungs. We reached Hans Meyer Cave, the halfway point, and just collapsed.

As we lay there resting, I tried to wiggle my toes but could hardly feel them. Our guide gave us some tea which felt good and we just lay there barely awake, exhausted. After an undetermined amount of time, he suggested that we move on before we froze, so we struggled to our feet. He informed us we were about to start the open scree and would follow a zig-zag path.

It started to get light. The jagged black bulk of Mawenzi could easily be discerned 5 miles behind us, across the saddle. Kibo was outlined against the sky above us—oh so *far* above us. Dawn was coming. Everytime we stopped to rest, I turned and watched the eastern horizon grow lighter. I could see the clouds over the top of Mawenzi, which was encouraging. I was up at least 17,000 feet. My head and stomach felt pretty good, the best since we got sick. There was no doubt in my mind (now) that I was going to make it. My major concern was to go slowly enough to leave enough strength so I could entertain the thought of going on to Uhuru Point once I reached the crater rim. The sun finally rose so I rested and took a picture, the camera barely functioning due to the cold.

I was moving at a faster pace than the Dane, who was "feeling more dead than alive". The guide decided it would be best to stay with him. I now rested 3 times on each traverse, sitting down at each corner. I didn't worry about not being able to get up again because the end was in sight (or so I thought) and I knew I was going to make it. The advance group had disappeared over the top so I was alone 30 yards above Erik and our guide. The width of the scree slope was getting narrower as we approached the apex of two rock spines that culminated at Gillman's Point. The traverses were



After Horumbo, climb route rises 6,280 feet in less than 10 miles. Trail traverses saddle between Mount Mawenzi, right, and Kibo hut on flank of Kilimanjaro.

a great omen. We caught up and passed the Italians as we approached the end of the tree level.

We walked for what felt like miles through low scrub that had at one time been burned out. The group was thoroughly mixed, porters, guides and hikers strung out in a 2 to 3 mile procession. Visibility was down to 50 yards, so we had no idea where we were going except up. We climbed to the top of one hill only to find another rise before us disappearing into the fog.

We knew we were approaching the cloud roof when everything started to get brighter (also the incline was getting steeper) and then we were out and Mawenzi peak could be seen over the hills, the top being around 5,000 feet above us. Kibo peak [Kilimanjaro] was still blocked by the shoulder of the hill, but not for long.

We cut across the side of the mountain, walking down one valley formed by a small stream, up the other side, over the ridge and then down another valley and so on. This was very pleasant, an unlimited supply of ice-cold water—what luxury! The ice-capped Kibo peak appeared straight ahead, a snow-covered, flat-top, brown rock sticking up over the shoulder joining the two peaks [Kilimanjaro and Mawenzi]. Ern and I took some pictures of us posed on top of great boulders with Mawenzi in the background; Sir Edmund Hillary, Jrs.! (it didn't last long). About a half mile from Horombo hut we stopped for lunch, took a break and then headed on. We rounded a corner and Horombo hut camp was 300 yards across a stream valley. The end of Day Two was in sight—for everyone else but not us. (Oh what fools!)

In talking to Mr. Palmer we had decided it would be a good idea to walk up to Mawenzi hut for acclimation and a little more exercise and then return to Horombo hut for the night. Mr. Palmer had supervised the construction of this hut so we thought it might be nice to go see it. Mr. Palmer made it sound like a pleasant little jaunt up and back. No problem. We had arrived at Horombo at 3:00, i.e. done 10 miles from 9,000 feet to 13,354 feet in 5 and ¼ hours and both of us felt really good, no problems with the altitude or our legs. We took a brief rest and started at 3:40 with Emmanuel, our guide, for Mawenzi hut.

We rounded one large outcrop and there Kibo lay. To me it was one of the most awesome, majestic and disheartening sights I have ever seen. Sure craggy Mawenzi towered 2-3,000 feet right over our heads but 4 miles to our left across the desolate "saddle" lay Kibo. The sun was starting to move behind the peak so our side lay in some shadow. Between the dark side of the mountain and the glistening ice cap, it looked monstrous, huge, massive! Then we noted a tiny little piece of reflected light about a third of the way up—Kibo hut, our objective for the next day. A little beaten ribbon meandered across the saddle to the hut and then appeared to go straight up to the crater rim and Gillman's Point, 18,640 feet above sea level. I never realized how high that was until I saw it. From the "saddle" to the peak is taller than the majority of the mountains in New England from *sea level* to their peak. The highest point, Uhuri Point, is a bit under 20,000 feet (it's 19,340); 747's fly at 33,000 feet. I immediately thought of myself as out of my right mind as I stood there puffing and leaning on my walking stick. In a little over 24 hours I am going to try and climb that mother.

We arrived just as the rest were finishing dinner (8:30). Ern and I wolfed down some food and went to bed. I was too tired to undress so I slept with my muddy pants on. It got cold that night but Ern and I in our down sleeping bags were comfortable. Still, I didn't sleep very well.

down again and packed the camera away. I sat there thinking "Well, what next?" and then realized how bad I felt. The throbbing in my head felt like a kettle drum and I was so lightheaded I thought my head was going to disengage and float away; when I moved I saw bright yellow spots. Basically I felt terrible now, and I knew I was going to get sick again so I rolled over, dry-heaved a couple of times, and finally vomited. I lay there staring at my vomit very coolly as if it was something else. It had me totally puzzled; I couldn't figure out the color. When I realized what I was doing, it scared me. Uhuru was definitely out of the question and I had best get to a lower altitude before I got worse. So, holding my head under my arm, I started the difficult climb down.

I picked my way carefully through rocks, knowing if I slipped I wouldn't be able to stop myself. When I reached the scree, I couldn't take the leaps the others had because each step jarred my fragile head. As I descended, I started to sweat. The only solution was to start peeling layers. Everything started to take on a surrealistic appearance. I had turned my mind off and was simply half-walking and half-sliding down the scree. I came to the end of the zig-zag path and I started to remember my struggles of that morning but from a very detached attitude. I remembered watching Erik's feet in front of me and the surrounding blackness. This memory didn't seem to be connected with where I was now walking, although it was the very same place. I reached the cave and it looked totally different. Then I spotted Ern, a couple of hundred feet below the cave.

After he left the main party, he had returned to the hut and napped. When he woke up his headache wasn't quite so bad so he set out on his own. He had no idea what time he started except the sun had risen. He had been climbing for 3 hours and about 2000 feet when I met him. Emmanuel, our guide, had gone to check up on him in the hut, found his bed empty and then figuring out what happened chased up the mountain after him. Ern related all this to me as we sat there munching on some snow. By now I had a 60 inch waist from all the clothes tied to and hanging from my belt and I was terribly thirsty. I wished Ern good luck, Emmanuel congratulated me, and I continued on down the mountain. The

The writer with Emmanuel, indefatigable guide who offered to push *Ernie last 2,000 feet to the top.*

sensation of being in a different place stuck to me the whole time.

I finally made it to camp [Kibo Hut], the whole downhill hike taking a little over an hour. I drank 2 cups of juice, 3 of water, some more Chinese canned peaches and then decided to lie down. I put my feet up and immediately fell asleep. I woke up, stripped down, and packed so my porter could start down. About that time Ern came cruising around the corner and lay down on his bed with a groan. He had gotten another thousand feet before his head hurt too much to go on any further. Emmanuel had offered to push him the rest of the way. Emmanuel also stated that it is next to impossible to make the climb in daylight because you can see where you have to go. After a short rest, Ern packed and we set off on the long hike back to Horombo Hut, our rest spot for the night.

Once we gained a lower altitude our heads started to return to normal. We were both exhausted and looking forward to "Last Water" spot. We stopped to rest occasionally and look back at Kibo. Unfortunately some clouds moved in and covered the top. All I could think about was WATER. I just wanted to drink and drink. We finally reached the stream and just absorbed it. With a little over a mile to the hut we sat there for half an hour, just being content. What luxury! We felt good and had all the ice-cold, crystal-clear water we could drink.

After dinner one of the Danes broke out the bottle of champagne he had hauled all over the mountain and we celebrated. 3 had made it to Uhuru and 5 to Gillman's Point, much better than the average.

July 16 *Horombo Hut via Mandara Hut to Marangu Hotel*

We arose early because everyone had a long day ahead of them. We had to do in one day what we walked in the first 2 days—between 20-25 miles. We reached Mandara Hut without any problems. After a short lunch we moved on, eager to get to the bottom and a hot bath. From here on down the footing got really bad. The road dragged on forever and we still had 5 miles after the park gate! We made it to the gate but I had to damn near crawl into the Marangu Hotel. I had walked about 80 miles in 5 days, succeeding in reaching the crater rim at 18,640 feet. Of the 14 tourists who started at the same time (excluding the 4 professionals), 3 had to quit at Horombo and another 3 on the final ascent. The guides told us that, on average, about 5 out of 15 made it to the crater rim. I had experienced high altitude, been sicker than a dog for a day, and seen a view that didn't impress me much at that time; but the hike up was through beautiful scenery. If someone had asked me right there as I entered the Marangu Hotel if I would do it again, my reply would have been an immediate "Hell no, not a chance!" but now that my memory of some of the pain has faded, I would have to say, "Let me think about it." You see there remains the little matter of Uhuru Point.

Gigi

P.S.: We flew over the top of Kilimanjaro, between Kibo and Mawenzi peaks, in a DC-9 the next day. What an impressive sight—and to think I stood there on top of the tallest mountain in Africa! □

Climbers' first close view of Kilimanjaro: "Four miles across the desolate saddle lay Kibo, one of the most awesome, majestic and disheartening sights I have ever seen. Between the dark side of the mountain and the glistening ice cap, it looked monstrous, huge, massive! A tiny piece of reflected light about a third of the way up was Kibo hut, our objective for the next day."

getting smaller and smaller and the path was getting harder to follow. Everytime I rested, I either looked at Kibo Hut, a glistening speck thousands of feet below me or else tried to find the path up through the rocks. The going got tougher and foolishly I pushed harder because the top was close. I was climbing over rocks, resting, pulling myself up a little more, resting, and then continuing. I kept expecting to see the aluminum pole marking the crater rim but all I saw was more rocks. Then I saw the Danes: they came charging down the slope, sliding in the scree like we used to on the dunes at Cape Cod. As they approached me, one stopped by sliding into an imaginary first base and just sat there, his legs buried by the scree. He took off his snow goggles and groaned, "I'm tired". They warned me about what was ahead and took off down the slope, covering 6-8 feet in a step. (It has taken people 4 hours to get up and less than a half hour to get down.)

The scree stopped and nothing lay in front of me but a huge pile of rocks and the sky. My strength was leaving me fast but I still pushed on, too hard. I picked the lowest spot and headed for that. I stopped to rest and glanced up. Straight ahead lay the crater floor, to my right a large glacier behind the rim. I looked up to my left and there was the aluminum pole with a few shreds of flag hanging from a string. Gillman's Point. And then my energy left me, my head exploded. I dragged myself up the last bit and lay there next to a sheet of concrete inscribed "Gillman's Point".

What I did on the top is a little foggy: I was so light-headed that not very much made sense, especially my reason for being there. I staggered around, muttering to myself, trying to figure out what to do next. I looked at my watch, 7:20. It had taken me 5 hours 40 minutes to cover 3 miles with a vertical ascent of over 3,000 feet. I walked around the small area forming the point, looking for the route to Uhuru. The only way I could see was over some very large boulders and I knew if I tried this I would fall, seeing as how I could barely stand up. I went back to the flag pole and sat down against a rock. I took the book out of the box and prepared to sign it but couldn't find any blank spaces. It didn't interest me that much; nothing did. I sat there looking around. "Nice glacier over there —so what—not a very good view . . . Man, Kibo Hut is a long ways down . . ." I sat there thinking pretty nonsensically. I debated whether I should take some pictures and then decided I had best. I stood up and shot some film, don't ask me how much or of what because I don't remember. I do remember trying to hold the camera steady but hard as I tried, it still was shaking very badly. I sat

1974, 75	James H. Williams, Jr. '74 and Leslie Beckwith '75, 507 Ocean Parkway, Brooklyn, NY 11218	Nov. 1, 1975
1975	Daniel P. Prue and Patricia Hall '75, 109 Kaye Vue Drive, Apt. 2A, Hamden, Ct. 06514	Jan. 10, 1976
	Randel Russo and Beverly Huntress '75, 85 Old Town Road #7, Vernon, Ct. 06066	
	David S. Wolk '75 and Martha Coulter '75, 5 Court St., Rutland, Vt. 05701	
	MASTERS:	
1972	LeRoy W. Robinson, Jr., and Patricia Webster (Spanish '72) 5802 Merton Court #182, Alexandria, Va. 22311	Nov. 22, 1975
1975	Michael Stuart Frisch and Melinda Siegel (Spanish '75), 1101 N. Calvert St., Apt. 902, Baltimore, Md. 21202	Dec. 21, 1975

Births

1950	Barbara and Richard H. Stokes '50	David Hallock	Jan. 7, 1976
1955	Alice and Albert F. Gollnick, Jr. '55	Peter Woodruff	Dec. 26, 1975
1958	Mary and Charles R. Rice '58	Graham Charles	Nov. 19, 1975
1961	Heske and Rabbi Gerald Zelermyer '61	Gideon Yehiel	Nov. 12, 1975
1965	Ann Fowler LaBerge '65 and Bernard LaBerge	Leigh Claire	Dec. 27, 1975
	Mary Hawkins Sachs '65 and Arthur G. Sachs	Andrew Kimball	Oct. 17, 1974
1966	Martha Estle Eaton '66 and Bryant Eaton	Alisa Redmond	June 23, 1975
1967	Ruth Ann Haas Beers '67 and Bruce Beers '67	Douglas Andrew	Feb. 8, 1976
1972, 70	Karen McDonough Sturges '72 and Jeff Sturges '70	Sarah Forsbrey	June 10, 1975
1972	Basuda and Badri D. Pande '72	Anup	Aug. 6, 1975
	Karen Burnap Gallup '72 and Richard Gallup	Kimberly Pederson	Jan. 17, 1976
1973	Susan Frye Ryan and Michael Ryan '73	Michael Railroad	Nov. 8, 1975
1974, 75	Leslie Beckwith Williams '75 and James H. Williams, Jr. '75	Mica Leslie	Dec. 26, 1975

Deaths

1911 Word has been received of the death of **Marjorie Flint Thomas Jenkins**, 87, late in 1975. She attended Middlebury from 1907-1908 and the Summer Session in 1912; she graduated from Simmons in 1912. She was an instructor at the high school in Nooksack, Washington from 1914-1918, after which she graduated from Reed College. In 1918 she taught high school in Burlington, Wash. for a year and then at Meridian High School in Bellingham, Wash. for a year. Survivors are her husband, William H. Hunt; three children, William Henry, Mary Elizabeth, and Alice Josephine.

1912 Word has been received of the death of **Eleanora Chesley Nutter**, of Epsom, New Hampshire on Dec. 12. She attended Middlebury from 1908-1910. She received a BA from Smith in 1912. She taught at the high school in Monticello, N.Y. from 1912-1913 and Epsom, N.H. from 1914-1921. Mrs. Nutter was a member of the Epsom school board from 1922-27 and again from 1936-42. She had been a trustee of Trust Funds for the Town of Epsom since 1933.

1913 Word has been received of the death in May, 1975 of **Jessie Haskins Charbonneau**. She was a student at the New York State College for Teachers in Albany from 1909-1911. After graduating from Middlebury, she taught at the high school in West Hebron, N.Y. until 1914, and in Granville in 1915. After that, she was a student at the American School of Osteopathy in Kirksville, Missouri. She was a director and State chaplain for the American Auxiliary.

1914 **Robert Edgar Bundy**, 84, died on December 18 at his home in Bethel, Vt. From 1914-1915 he had been a salesman for the American Aluminum Company in Canada, Eastern Maine and New Brunswick. He married Gladys Wilson '14 in 1917. He was a manager of the Camp Brook Farm in Bethel from 1915-1918, and with the Eastern Talc Company of Rochester, Vt. from 1919-1922. From 1922-1927, he was a teacher at Central China College in Wuchang, China and at St. Paul's University in Tokyo from 1927-1930. Columbia University awarded him an MA in 1926. He returned to Bethel in 1930 and operated the Guy Wilson Insurance Agency for over 35 years. He was also town clerk for 25 years. During WWI, he was in the U.S. Army Signal Corps with the rank of Sergeant. His wife died in 1973. Mr. Bundy had recently completed a book entitled, "Just Visiting", about his 20 years as correspondent for the White River Valley Herald. Survivors are his daughter, Mrs. John (Doris) Aprilliano; a brother, Harold; a sister, Mrs. Alice Davis; three grandchildren, five great-grandchildren, and several nieces and nephews.

1915 **Charles S. Jones**, 82, died February 12 in the Virgin Islands. From 1915-1917 he taught Physical Training at Montclair, N.J. While with the Curtiss Airplane Co. from 1919-1928, he won more than 40 air races. In 1928 he was assistant to Charles Lindbergh and vice president of Curtiss Wright Corp. from 1929-1932. He organized and was president of the Casey Jones School of Aeronautics in 1932 where he also organized the Curtiss Exhibition Co. which conducted pilot schools. Eventually he founded and headed the Curtiss-Wright Flying Service, for which he set

ALUMNI NEWS

MILESTONES

Marriages

1939	Norman Premo and Margaret Carter '39, 370 Richard Ave., Paxton, Ma. 01612	June 21, 1975
1952	Edwin L. Abbott, Jr. and Barbara Brailey '52, 7289 Cricket Ln., Cleveland, Ohio 44131	Feb. 14, 1976
1955	Robert E. Goodchild '55 and Margaret Ann Lumbra, 211 Sargeant St., Holyoke, Ma. 01040	Nov. 26, 1975
	David P. Delano, Jr. and Sally Polhemus Farnsworth '55, 29 Lake Drive, Quanset Harbor Club, So. Orleans, Ma. 02662	Dec. 20, 1975
1957	Pierre Henry du Vair and Suzanne McLaughlin '57, 235 Lincoln Place, Brooklyn, NY 11217	Nov. 22, 1975
1959	James A. Barclay and Ann Turenne Watson '59, 2110 Vistazo East, Tiburon, Ca. 94920	
1960	W. J. Michael Cody and Nancy Phillips Caldwell '60, 1606 Goodbar, Memphis, Tennessee 38104	Sept. 6, 1975
	Dean Bernasconi '60 and Madeline Gould, Shuit Place, Central Valley, NY 10917	Oct. 11, 1975
1964	Lewis H. Skinner and Cynthia Poltrack '64, 42 Staffordshire Ln., Concord, Ma. 01742	Oct. 1975
1965	George P. Breznay and Susan P. Riley '65, 3320 Northampton Street, NW, Washington, D.C. 20015	
	Lawrence P. Leahy '65 and Jane Prendergast	Nov. 22, 1975
1967	George R. Hinman, Jr. '67 and Emilie Kellogg, 205 E. 31st St., New York, NY 10016	Nov. 29, 1975
1968, 70	Richard McMahon '68 and Lindy Allen '70, 39 Churchill Court, Fayetteville, NY 13066	
	Howard J. Rotblat and Susan Walker '68 (married name: Rotblat-Walker), 1405 Blackwell Side Road, Sarnia, Ont., N7T 7H2, Canada	June 28, 1974
1970	Michael Sunu and Lasell Jaretski '70 (adopted new name is: Ms. Li Everbe), 1057 Steiner St., San Francisco, Ca. 94115	Feb. 14, 1976
	Kingsley Parker '70 and Kathleen Cameron c/o Kenneth Cameron, 4 Washington Square House, New York, NY 10012	Nov. 28, 1975
	Manlio Loconte and Jane Linder '70, 812 Memorial Drive, Apt. A1501, Cambridge, Ma. 02139	Aug. 27, 1975
1970	Barry Kricheff and Adele Kiefer Stull '70, Maple Hill Road, Salt Point, NY 12578	
1971	Kenneth Mattes and Susan Emeis '71, 2341 Badger Parkway, Apt. 1, Madison, WI 53713	Jan. 3, 1976
1971, 75	Samuel McDowell '71 and Deborah Francisco '75, 18B University Heights, Burlington, Vt. 05401	Oct. 25, 1975
1972	James S. Gamble '72 and Denise Michelle Kath, Olde Carriage House, Apt. C1, Olde Boorne Drive, Clinton, NY 13323	Aug. 2, 1975
	Li Pin Tsung and Madeleine Phu Dung '72, 3rd Floor #9 Alley 10 Ln. 223, Chung Hsiao E Road, Section 4, Taipei, Taiwan	Mar. 29, 1975
	Neal S. Garonzik and Sarah Butcher '72, 9 Gloucester St., Boston, Ma. 02115	Jan. 24, 1976
	Peter Russell '72 and Ingrid Stanlis '72, Box 683, Middlebury, Vt. 05753	Apr. 28, 1974
	Samuel R. Morgan III and Penelope Guy '72, 842 Hope St., Providence, RI 02906	Oct. 4 1975
	James V. C. Potter and Virginia A. Clark '72, 19 Egerton Rd., Arlington, Ma. 02174	Sept. 13, 1975
1972, 75	George Kuckel '72 and Madeline Bristol '75, K-10 Clinton House Apts., Clinton, NY 13323	Sept. 13, 1975
1972, 73	Steven Lundy '72 and Sue Meyer '73	Dec. 23, 1975
1973	Gary R. Belford and Heather Strong '73, 306 Verand Place, University of California Aruine, Aruine, Ca. 92664	Aug. 16, 1975
	Ronald B. Durning, Jr. and Marjorie Lyons '73, 554 Mercer St., Albany, NY 12208	Aug. 2, 1975
1974	John Fitch Shoemaker, Jr. '74 and Barbara See '74, 14 Horatio St., Apt. 9J, New York, NY 10014	Nov. 27, 1975
	Edward B. Crawford and Susan J. Sachar '74, 3400 Pleasant Ave., So. Minneapolis, MN 55408	
	David Foss '74 and Lise Watson, 172 Hillside Ave., Pawtucket, RI 02860	Dec. 27, 1975
	Leonard F. Skonecki and Peggy Robinson, 2732 Farrington, Apt. B., Toledo, OH 43607	Aug. 16, 1975

of Bennington College. In 1968 he received the Alice M. Ditson Award presented by Columbia University to an American conductor; other conductors previously so honored included Howard Hanson, Leopold Stokowski, Robert Shaw, and Leonard Bernstein. In 1972 Mr. Carter received from Gov. Deane Davis the Vermont Governors Award for Excellence in the Arts.

At age 6, he began studying the violin and at 13 became a pupil of the master teacher, Leopold Auer. After graduating from the Taft School and studying a year at the Mannes School in New York City, Mr. Carter spent nearly five years in Europe, studying music for a year each in Cologne, Paris, Milan, and Munich. He returned to the States in 1929, taught violin in Chicago, and in 1933 organized and directed, as violist, the Cremona String Quartet. The following year he married Barbara Kent, daughter of artist Rockwell Kent. In 1935 Mr. Carter organized the Vermont Symphony and began his 40 years' exceptional service in nurturing the vitality of music in his adopted state. Mr. Carter is survived by his wife, five sons, a daughter, and many grandchildren.

Alumni Electing Two Trustees This Month

The nominating committee of the Alumni Council is pleased to nominate the following candidates for Alumni Trustee. The Classes from 1901-1973 will nominate one alumnus for a four-year term to begin July 1, 1976. Brief biographies of the candidates appear below. Balloting will be conducted by mail in April.

This year the classes of 1974, 1975, 1976 and 1977 will elect a woman from the class of 1974 or 1975 to serve as Alumni Trustee for a two-year term beginning July 1, 1976. The nominees presented here were elected by their classmates in their senior year. Balloting will be held in April and the candidate with the most votes will be elected.

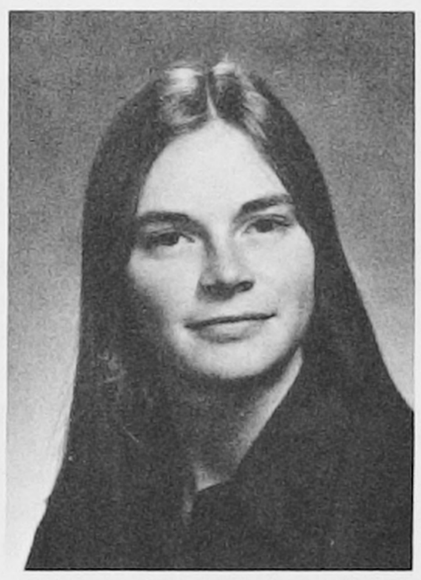
William G. Craig '37, 100 DeForest Road, Burlington, Vermont 05401. MA, University of Minnesota; Ed.D., Harvard, with Distinction, 1955. Taught in Middlebury High School, 1937-39; assistant director of Admissions, Middlebury College, 1939-41; U.S. Navy Air Force, World War II—received Navy Commendation, 1941-45; dean of students and instructor in educational psychology at Washington State University, 1945-51; dean of students and professor of education at Kansas State University, 1951-55; dean of men and associate professor of education, Stanford University, 1955-62; director of training and special assistant to director—Peace Corps, Washington, D.C., 1962-64; headmaster, John Burroughs School in St. Louis, 1964-66; deputy assistant secretary for administrator in Department of Health, Education and Welfare, 1966-68; academic vice president, University of Montana, 1968-70; president, Johnson State College, Johnson, Vt., 1970-74; chancellor, Vermont State Colleges, 1974 to present.

John M. Perry '45, PO Box 121, Aurora, New York 13026. MA, Harvard, 1948-49, University of Rochester, 1953-54, working on PhD; PhD 1960. Ensign, U.S. Navy, 1944-1946; Math instructor, Clarkson College, 1946-48; assistant professor, Clarkson, 1950-53; acting chairman of mathematics dept. 1956, chairman, 1959, Clarkson; full professor of mathematics, Clarkson, 1959; visiting member of the Institute for Fluid Dynamics and Applied Mathematics at the University of Maryland, 1964-65; appointed chairman of department of mathematics at Wells College in 1965; dean of the college, Wells, 1969-75; chairman, division of physical and mathematical sciences, Wells, 1975. Member of the Mathematics Association of America, the American Mathematical Society, the American Association for the Advancement of Science, the Association for Computing Machinery, Delta Upsilon fraternity and Sigma Delta fraternity. Recipient of the 1962 Excellent Teaching Award by the Clarkson Alumni Association. Team leader, Annual Giving to Middlebury, 1970-72.

FOR FOUR-YEAR TERM

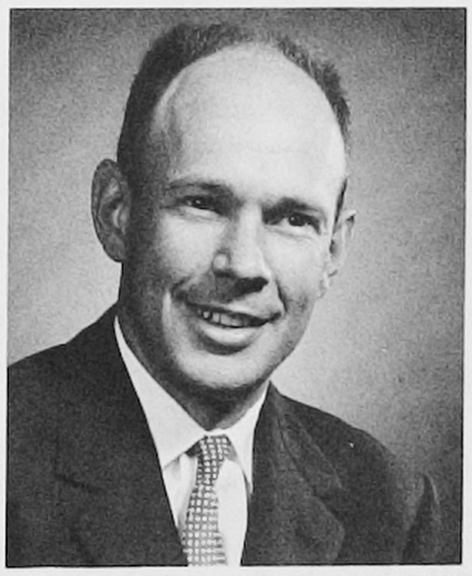
William Craig '37

FOR TWO-YEAR TERM



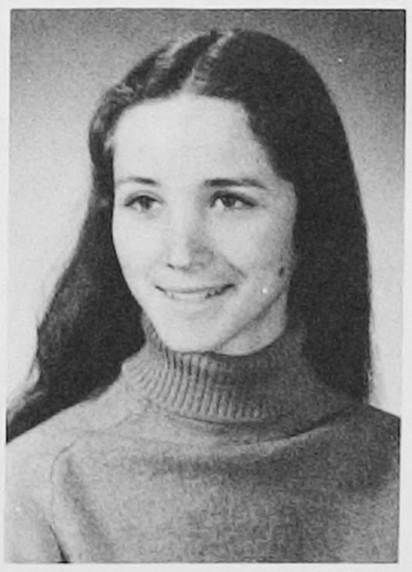
Katherine Conant '75

Susan Ebling '75



John Perry '45

Susan Hong '74



Mary Kane '74

up a chain of 40 airports around the country. In 1940 he founded the Academy of Aeronautics at La Guardia Airport for training technicians. Eventually the school became an accredited junior college. He retired as president in 1965 but remained as chairman of the board. During WWI he was a Captain in the Aviation Section of the Army Signal Corps. He was founder and past president of the Wings Club in New York. Survivors include his wife, Hulda Cole ; a daughter, Deborah Jones Scammell ; eight grandchildren and two great-grandchildren. A member of Phi Beta Kappa, Mr. Jones was awarded an honorary doctorate by Middlebury in 1942.

1916 **George Remington Ayres**, 84, died in Mamaroneck, New York. He taught at Rye Neck High School in Mamaroneck from 1916-1917. He was an assistant at a Physics Lab., Columbia Graphaphone Co., Bridgeport, from 1920-1924. Mr. Ayres again taught at Rye Neck High School from 1924-31 and became principal of Daniel Warren School in Mamaroneck in 1931. He was a member of Kappa Delta Rho. He is survived by a daughter, Shirley Ayres Tilden '47, of Richmond, Virginia.

1917 **John Edward Rourke**, 82, of Framingham, Mass., died January 7, 1975. He had coached under Knute Rockne and taught at Notre Dame. At Middlebury from 1912-15, John graduated from Boston University and did graduate work at Middlebury. He was also a student at Connecticut Teacher's College in New Britain. Mr. Rourke taught for many years in the Waterbury schools, and later he taught business subjects at Notre Dame University and St. Edwards College in Austin, Texas. He was a member of the Knights of Columbus and the L Street Brownies in South Boston. Survivors are his brother, Charles ; and two sisters, Mrs. Helen Doyle and Mrs. Anna Cunningham '17.

1917 **Harold B. Gammell**, 81, of Weymouth, Mass., died on October 12, 1975, at his home. Mr. Gammell had worked as an explosives research chemist for National Fireworks in Hanover until his retirement. He was a member of the Tuscan Lodge of Masons, Lawrence, and a former senior warden and vestryman at the Church of the Nativity. Survivors include his wife, Mrs. Elizabeth (Healey) Gammell, a daughter, Mrs. Claire Taylor, two grandchildren and three great-grandchildren.

1920 **Haskins Canfield**, 75, of Belmont, Mass. died November 26. He attended MIT receiving an MA in 1922. He retired in 1965 from Dewey & Almy Chemical Co. in Cambridge, after 41 years. He had been the vice president for the overseas division. Mr. Canfield served with the Army in WWI and was active in the Boy Scouts and civil defense work in Belmont. Survivors are his two sons, David and Frederick ; a daughter, Mrs. Ann Bolster ; two brothers, Norton and Arthur, and 13 grandchildren.

1920 Word has been received of the death of **Emily Millard Brackett**, 80, of Charleston, West Virginia. Survivors include her husband, William S. Brackett ; and two children, William S. Jr. '53 and Eleanor M.

1925 **Adrian C. Leiby**, 72, of Bergenfield, New Jersey, died on February 16. A graduate of Harvard Law School in 1929, Mr. Leiby was a law clerk to Supreme Court Justice Harlan F. Stone for a year before joining the firm of Bainton, McNoughton, Douglas & Leiby in New York. He became a Fellow of the American Bar Association. He was also a director of the Hackensack Water Company, of St. Regis Paper Company, and of the Sentinel Fund National Life Insurance Co. of Montpelier, Vt. An author and historian, Mr. Leiby wrote "The Revolutionary War in the Hackensack Valley", "Dutch and Swedish Settlers of New Jersey", as well as a centennial volume on the Hackensack Water Company. Mr. Leiby was a member of the Downtown Association, the University Club, and the Wall Street Club, all in New York City, and of the Arcola Country Club in Paramus, New Jersey. From 1965-70 he was an alumni trustee on the Middlebury Board of Trustees. In 1975 he received the Alumni Meritorious Service Award. Survivors include his wife, Mrs. Encorie Atkins Leiby ; a daughter, Mrs. Adrian L. Scott ; and a sister, Mrs. Catherine L. Marchbank ; plus three grandchildren.

1928 **Raymond F. Prinz** of Laguna Hills, Calif. died on January 16. He attended Middlebury from 1924-1925, and studied at Yale from 1925-1929, receiving a PhD. Mr. Prinz started working at Prudential Insurance Company of America in 1929. He was a Lieut. Comdr. in US Navy during the war.

1928 **Willard B. Eastman**, 69, of Concord, New Hampshire, died January 28 in a Concord nursing home. He did graduate study at the Bates College Summer School and at Concord (N.H.) Business College. He taught at Penacook (N.H.) High School from 1928-1930 ; in Whitefield, New Hampshire from 1930-1931 ; and was an adult-education teacher in New Hampshire from 1934-1935. From 1939 to 1971 he was supervisor of records for the State Police. Mr. Eastman was a veteran of WWII, a member of Wesley Methodist Church, the N.H. Assn. of Retired Law Enforcement Officers, the N.H. State Police Benevolent Assn., and of the White Mountain Masonic Lodge at Whitefield. Survivors include a brother, the Rev. Reginald W. Eastman '26 and cousins.

1930 **Theodore Henry Zaremba**, 69, of Chatham, Mass., died on November 25. He was employed by the traffic department of the New York Telephone Company from 1930-1932, then was an orchardist in Shoreham, Vt. for 25 years before moving to Chatham nine years ago, where he and his wife were the owners of a gift shop. Ted attended Middlebury Summer School from 1932 to '43. Survivors include his wife, Beatrice (Lindgren) Zaremba '37 ; sons, Frank and Robert ; and daughters, Mrs. Dianne Lee and Jill.

1935 Word has been received of the death of **Mary G. Ballard** of West Newton, Mass. on January 7. She held several secretarial positions in Boston between 1935 and '40, and had been a secretary in various departments at MIT since 1940.

1941 Word has been received of the death of **David Cox Anderson**, of Andover, Mass. He attended Middlebury from 1937-1939 and the University of Delaware from 1939-1941. He was a salesman for the A & M Advertising Company, New England ; Wearever Aluminum Co. in Boston ; and J. J. Columbo Co., Boston. He was most recently owner of Merrimack Investment Co. During WWII he was a Lieutenant Commander in the Navy. Survivors include his wife, Barbara ; two sons, Christopher and Kendrick, and two daughters, Mrs. Ainslie Turner and Bettina. David was a member of Sigma Phi Epsilon.

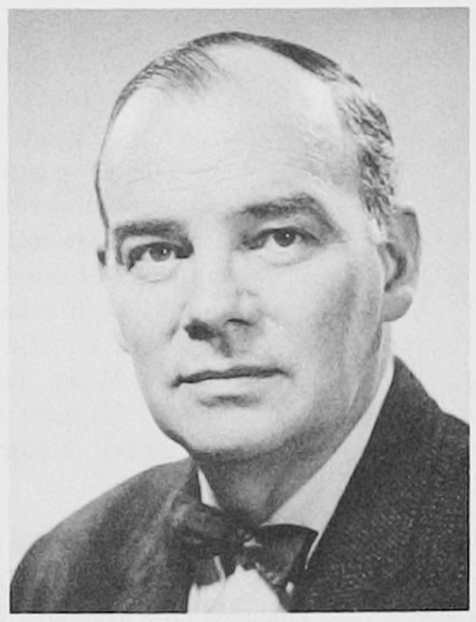
1954 **John J. Doria, Sr.**, 56, died January 26 at the Porter Medical Center. He was a member of the Knights of Columbus and the Lions Club and a past member of the American Legion. In WWII he served in the Army Air Corps. He was owner and manager of Sam's Market on College St. for many years. Survivors are his wife ; four sons ; John Doria, Jr., James, Jack, and Jeremy ; a daughter, Mrs. Michael (Jana) McGrath ; a granddaughter ; his mother, Margaret Doria ; two brothers, Ernest and Joseph ; two nephews, a niece, and several uncles and aunts.

1954 **Rev. Wallace C. Short**, 43, pastor of the Framingham, Mass. Congregational Church, died on February 16. From 1957-1963 he served as pastor of the First Congregational Church in West Brattleboro, Vt. and was pastor of the Bethany United Church of Christ in Montpelier from 1963-1971. He had been serving in Framingham since 1971. He was director of Camp Wihakowi in Northfield, Vt., Youth chairman of Windham Council of Churches, and a member of the Vermont task group of the World Council of Churches, serving on the structure study committee. Survivors include his wife, Jane Holcomb ; his mother, Mrs. Ethel Hendrickson ; and two sons, Scott and Mark.

1952 **Dr. William V. Kinnard**, who has been associate director for professional affairs and medical director at the Albany Medical Center Hospital, has now become president of the Buffalo General Hospital. Dr. Kinnard has also been clinical assistant in the department of medicine at the Albany Medical College, a member of the board of directors of Blue Cross of Northeastern New York, and a member of many other professional and civic organizations.

Former Faculty

Alan Carter, Professor-emeritus of Music, was found dead in his car on September 22nd. Death was caused by carbon monoxide poisoning. Mr. Carter was 71. He had taught at the College for 30 years, 1939-69, less two years of Army service, 1942-44. In 1935 Mr. Carter founded the Vermont Symphony Orchestra and was its musical



director and conductor for the next 40 years. The orchestra became the first official state symphony in the US in 1942 when the State Legislature first appropriated funds for its support. Mr. Carter founded in 1946 the Middlebury College Composers Conference and later directed for many years the Composers Conference and Chamber Music Center

doodle Puppets, and president of the New England Guild of Puppeteers? She also wrote the book, "Bring on the Puppets," recently published by Morehouse Barlow.

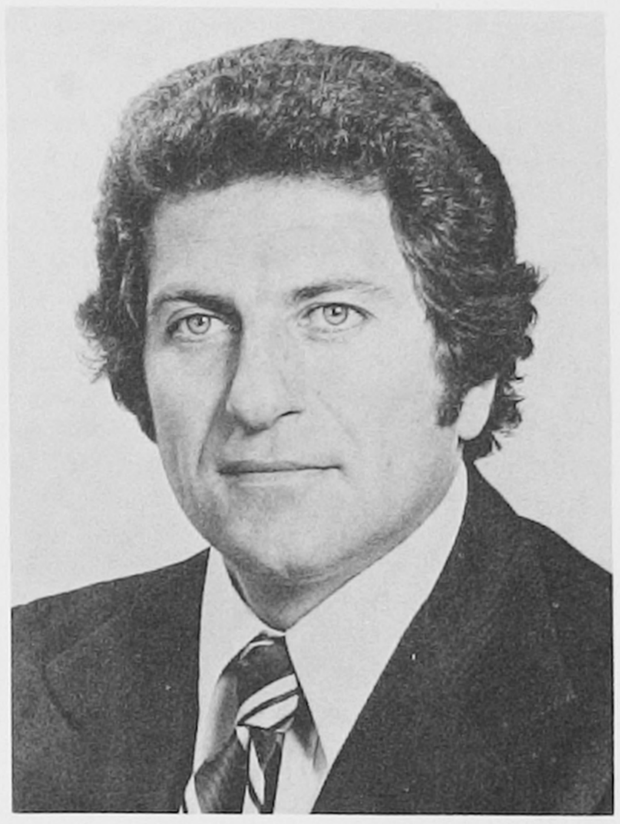
47

Marvin S. Raphael is now servicing institutional accounts in Western Massachusetts for the stock brokerage firm of Moseley, Hallgarten & Estabrook Inc. His new address is: 11 Regency Park Drive, Agawam, Massachusetts 01001.

48

Allan L. Frew, executive vice-president, secretary, and a director of Waterbury (Conn.) Buckle Company, has been elected president of the Waterbury Hospital. And as if that's not enough, he is also secretary and a director of the Waterbury Tag Company, chairman of the Board of the Flanders Nature Center, Woodbury, and is a member of the Society of Automotive Engineers Committee on Children's Restraint Systems.

Edward Furber '51



Eugene Margoluis '56

49

John G. MacMurtry is no longer assistant secretary of the Quincy Mutual Fire Insurance Co. . . . He is now secretary! His address: 159 Weston Avenue, Braintree, Mass. 02184.

51

Ed Furber is now vice president of marketing at the Bank of New Hampshire. He joined the Bank in 1970 as director of marketing, prior to which he was credit and sales manager for General Motors Acceptance Corporation in Syracuse. Ed's address: RFD #3, Concord, N. H. 03301.

54

Jack Carney has been elected executive vice president of the Lawrence R. McCoy & Co., Inc., a forest products marketing firm, in Worcester, Mass.

56

Recent news since our class letter to you: **Eugene Margoluis** has been promoted to assistant general sales manager for Columbia Pictures, headquartered in New York City. Eugene will be covering sales of several Columbia Pictures in the United States and Canada.

Ron Lawson neglected to cover his "bit of traveling" activities in our class news letter: In the past year he was in Stockholm for two weeks accompanying 137 students and teachers on an exchange program; he spent six weeks at Boston College during the summer working towards his Master's of Education in Religion; and he was in Germany for two weeks at the Benedictine Monastery at Ettal in the Bavarian Alps near Oberammergau, where he became a Catholic in 1960.

Channing Murdock has been elected president of the Eastern Ski Areas Association. Chan is owner of the Butternut Basin Ski Area in Great Barrington, Mass. plus Ski Sundown near Hartford, Conn. He entered the ski business as general manager of Mohawk Mt. Ski Area in 1960 and then purchased Butternut Basin in 1962.

See you all at reunion this Spring!

57

Tim and **Liz Wallace** are really moving with plans for the 20th Reunion this Spring. Saturday p.m. dinner will be held at the Middlebury Inn with the class of 1956 so you can see old friends in a class close to ours. Come on back even if we're making you a year older than you are, with a 20th this year.

Peter C. Read has been named a senior vice president of the First National Bank of Boston. He was previously in charge of the United Kingdom operations of the Bank and has now returned to Boston to head the bank's National Division, one of four divisions handling commercial-lending activities.

58

Alice P. Kenney has done it again. . . She's written another book—published by Syracuse University Press and entitled **Stubborn for Liberty: The Dutch in New York.** Alice has a number of Dutch ancestors, herself, and says in her foreword that she wrote the book not only for general readers and students of New York State history, but also for the descendants of Dutch families who want to know more about their forebears' accomplishments. **Stubborn for Liberty** tells of the enterprising Dutch who explored the Hudson Valley, exploited its wealth in furs, and established permanent settlements of traders and farmers. Some took advantage of the expanding opportunities of

WEEKENDS TO REMEMBER

May 28-30, 1976	Commencement Reunion Weekend
September 3-5, 1976	Alumni College
October 1-3, 1976	Reunion Weekend, Classes 1966 and '71
October 8-10, 1976	Homecoming Weekend
October 22-24, 1976	Parents Weekend
January 28-30, 1977	Alumni Winter Weekend
February 24-27, 1977	Winter Carnival
May 27-29, 1977	Commencement Reunion Weekend
September 23-25, 1977	Reunion Weekend, Classes 1961, '62 and '63
October 14-16, 1977	Homecoming Weekend
October 28-30, 1977	Parents Weekend

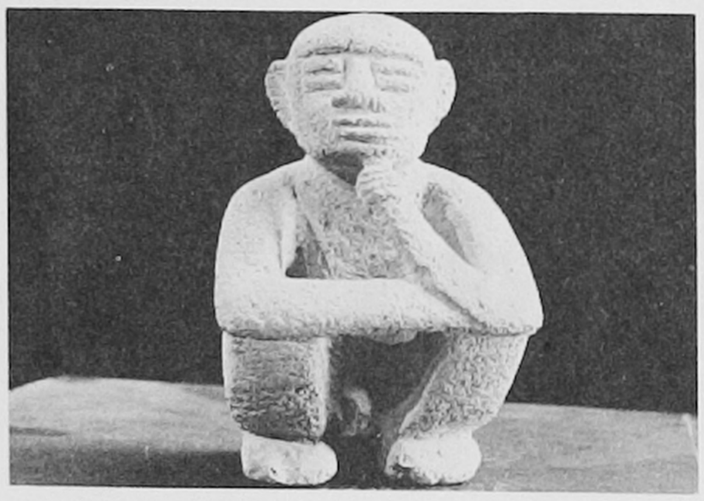
Trustee nominees for two-year term:

Katharine Conant '75, 27 Sturges Commons, Westport, Connecticut 06880. Major: American Studies—Literature. Graduated cum laude. Dean's List all eight semesters. Worked as a student intern for two years in the Dean of Students Office. Mountain Club, Pep and Concert Band, Sophomore Guide, WRMC-disc jockey, Hancock School Enrichment Program, Junior counselor, Freshman Orientation, treasurer of Mortar Board, co-conductor for Concert Band, Coordination Center director, and feature editor of the Campus. Present occupation: Customer Engineer, IBM Service, Office Products Division, Bridgeport, Connecticut.

Susan Ebling '75, "The Canary", Glendale, Massachusetts 01229. Majors: Biology and Psychology; graduated summa cum laude and elected to Phi Beta Kappa and Mortar Board. College Scholar seven of the eight semesters. Recipient of the George Catlin Fund Award. Secretary and vice-chairwoman of Student Forum, secretary of the Community Council and member of the Judicial Review Board. Certified in elementary education and a recipient of the Charles B. Allen Memorial Award. Member of field hockey and lacrosse teams. Present occupation: Social and physical development therapist at the Kolburne School in New Marlboro, Massachusetts (a psychiatric facility for emotionally disturbed children).

Susan Hong '74, 17110 Station Trail, Farmington, Minnesota 55024. Major: English. Graduated with honors in English. Dean's List 2 semesters. College Scholar 2 semesters. Newscaster WRMC, production staff of Campus, co-editor-in-chief of Campus; member of Student Forum, Community Council, finance committee of Student Forum, Judicial Review Board, Women's Action Coalition, Radical Education Action Project; chaired Advisory Council to the English Department. Extended sailing trip in winter of '74-'75. Present Occupation: legal assistant for public interest/environmental law firm (criminal work, sex discrimination); freelance calligrapher.

Mary Kane '74, 862 Reed, 1620 McElderry Street, Baltimore, Md. 21205. Major: Biology and Chemistry. Graduated with salutatory honors, summa cum laude and elected to Phi Beta Kappa. College Scholar all eight semesters. Recipient of Merck & Co. Award and the Barbara Buchanan Memorial Award. Member of Mountain Club, folk dancing group, French Club, Winter Carnival, Student course guides, Hancock School Enrichment Program; president of Pre-Docs and Mortar Board tutoring program. Member of intramural volleyball and coed ice hockey teams. Present occupation: Medical student, Johns Hopkins University, School of Medicine, 2nd year.



CLASS NOTES

22

Earle Haskins reports the following news: **Babe** and **Margaret Wade** had a wonderful trip to the Orient: Babe writes, "On October first of last year, Margaret and I flew to Tokyo for a long overdue visit with our son, Towar '52 and his family, who have been living there about two years. Having gone that far from home, and it being our first trip to the Far East, following three weeks in Japan we took a roundabout route back, stopping several days in Taiwan and Hong Kong, then three weeks in Australia and two final weeks in New Zealand.

"As all who have done it know, touring in foreign lands is usually great fun, as well as very instructive. Our junket was both, even though a good many of the details seem a trifle blurred. For my part, however, the outstanding feature of our tour was the friendliness and kindness of the people in Japan, Australia, and New Zealand. When they visit the U. S. I hope that their reception will be as cordial as theirs was of us."

Lou Donnelly has sent us his new address: 345-A Heritage Village, Southbury, Conn. 06488.

Dr. John M. Bachulus remains a loyal friend of Middlebury although he graduated from Bowdoin in 1922. He writes, "Even though I transferred to Bowdoin in '19 I still recall many fine incidents in Middlebury (and the beautiful scenery) with deep and lasting pleasure. I have recommended the college to many prospective students, especially the Summer Language courses."

23

Dorothy Parsons Howland and husband Willard celebrated their 50th anniversary and their four children arranged an open house in Southampton, Mass. to celebrate the golden event. The Howlands first met when Willard came to the Southampton area one year to pick peaches. The couple was married at the home of the bride's father on October 9, 1925 and they still reside in that home. Now, the Howlands have eight grandchildren.

25

We all remember well Arthur Headley who attended our last two reunions with wife **Dorothy Tillapaugh Headley**. It is with great sorrow that we heard of his death on December 11, 1975.

On February 16, 1976 attorney **Adrian C. Leiby** of Bergenfield, N. J. passed away after a long illness. As we well know, Adrian gave many years of devoted service to Middlebury as a trustee (1965-70) and alumnus, for which he was recognized last year when he received the Alumni Meritorious Service Award. We will all sorely miss our Adrian.

27

We were sorry to learn of the death of William E. Herrlich, husband of **Marion Morgan Herrlich** for forty-three years. Bill died after a long illness. Marion is living in Grafton, Vt. (Middletown Road, Grafton, Vt. 05146) where the Herrlichs have lived in retirement.

31

John N. Tweedy retired August 1, 1975 and moved from Dedham, Mass. to 1724 Baywood Way, Sarasota, Florida 33581.

35

Ruth Havard Okarski has been appointed to the Minnesota Humanities Commission. As a member, she will have a voice in deciding on disbursement of more than a quarter of a million dollars a year for support of programs in the humanities. Ruth is also a director of the Council for the Arts and Humanities for Rock County and has been involved in a variety of civic and cultural programs in the area. She has also served as a consultant for the National Endowment for the Humanities.

James S. Brock, executive vice president of the National Life Insurance Company in Montpelier, Vermont, has been elected a director of his firm. Jim is also president of the Vermont Bar Association.

37

Are you all waiting for our 40th Reunion this Spring to bring us up-to-date on your news?

38

"**Em Hebard**, Republican Chairman of the Vermont House Appropriations Committee, is one of those quiet men whose political clout is a telling thing, even though he rarely appears belligerent."—Vermont Sunday News, Jan. 25, 1976. And that's Em, who has been in the legislative service for sixteen years. A comment in the same article said that legislators who have worked with him, irrespective of party, spoke of their excellent working relations with Hebard. Em says, "I call myself a political realist . . . following the tradition of my family and my heritage in adhering, without compromise, to the principle of telling the public the exact truth. . ."

Everett S. Allen who has been assistant to the editor of the Standard-Times in New Bedford, Mass. has now become title editor of the editorial page and it's no wonder! He has won 11 journalism awards including the National Headliners silver medallion and an Associated Press citation for a nationally published series on U. S.-Soviet oceanography. He has had numerous articles distributed by the Associated Press and is the author of five books of which the most recent—on the impact of the 1938 hurricane in the Northeast—is to be published this year by Little, Brown of Boston.

41

For all of you alumni in New Hampshire who are Episcopalians and read the New Hampshire Churchman (that should narrow it down!), the new editors of this Episcopal diocesan newspaper are **Bill** and **Helen '43 Ferguson**. Bill has had a great deal of newspaper experience along the way with the Providence, R. I. Journal and also wrote a weekly column for 32 years called "The Rambling Reporter" for the Milford [N. H.] Cabinet.

43

Did you know that **Helen Rotch Ferguson** is now co-editor of a newspaper with her husband (see 1941 class notes)? Did you know that Helen is also a professional puppeteer, creator of the Flop-

67

If you remember **Chris Webber** on skates for the Varsity hockey team you may very well understand why he has been given the new name, "Mr. Rutland Hockey." Chris is an attorney in Rutland and also manages to help out the younger set in Rutland: He made an indoor hockey rink a reality for the youths of Rutland and for this he has now received two awards, The Rutland Elks Special Award for Outstanding Service to Youth and, more recently, the Rutland Region Chamber of Commerce Citizenship of the Year Prize. **Pete Thaxter** is also a lawyer and has recently joined the firm of Curtis, Thaxter, Corey, Lepez, and Stevens in Portland, Maine.

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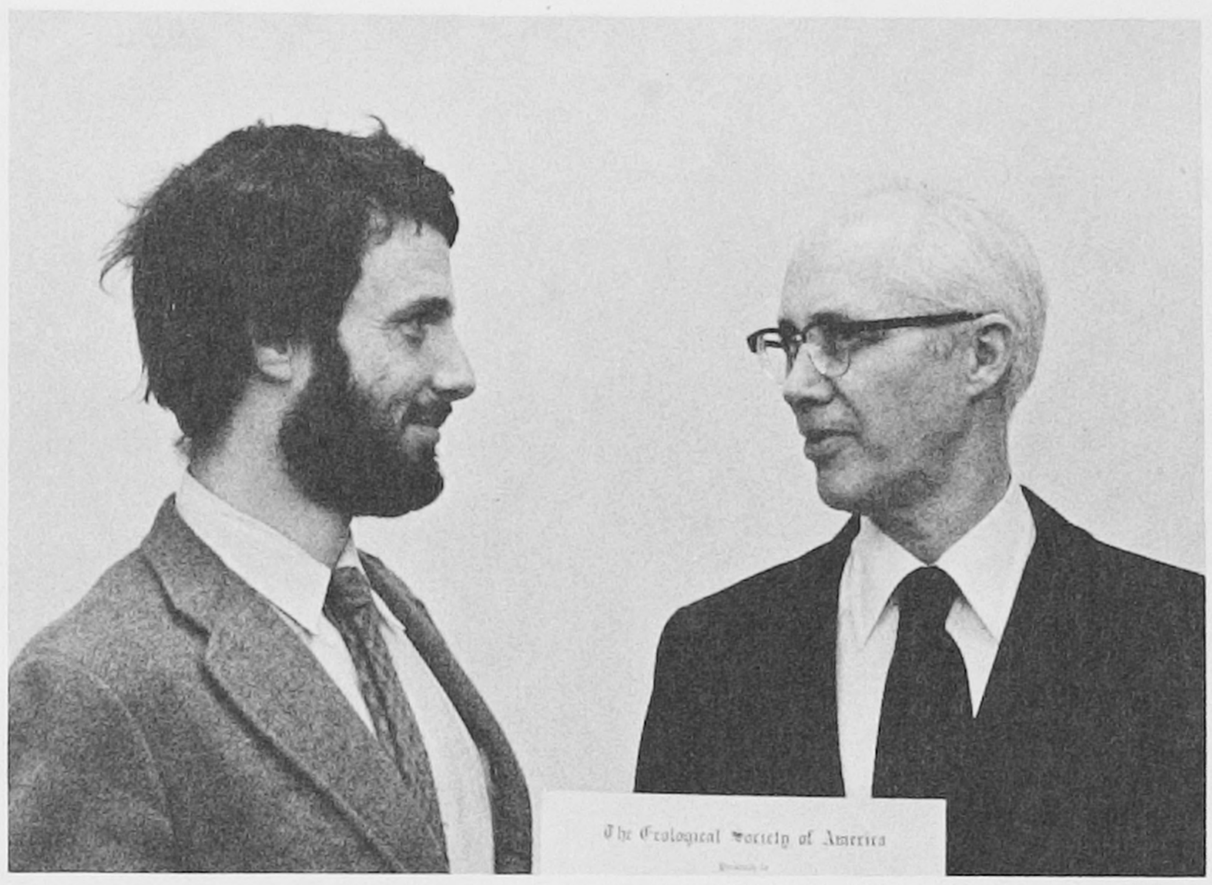
Rick Vomacka wrote to all about a year ago asking for information on your whereabouts, families, and activities. The response has been fantastic and he's had many great hours reading through almost 300 cards. We include some of your news from those cards in this issue:

Rick writes to tell us that his own year has not been quiet; Virginia and Rick have a new son, Joseph Thomas, and Rick is now EMS Coordinator working with a 17-county region that covers 10,000 square miles in northwest Iowa. He's having a ball despite the long hours. His new address is: 1509 West Palmer Ave., Sioux City, Iowa 51103.

Rick also writes: "When I recall my years at Middlebury, skiing eventually comes to mind and I usually wish that I had a job skiing in Vermont. **Terry Flahive** and **Chris Diamond**, therefore, have 'made it' as far as I'm concerned." Terry is director of sales at the Sheraton-Wayfarer in Manchester, N. H., and Kit is assistant to the president of the Killington Ski Area. **Steve Conn** works for the Brown Shoe Corp. in New York and lives just outside Princeton, N. J. "When I think of how big and mean he was on the football field it seems incongruous to picture him selling shoes! The CIA controversy is explainable when you know that **Jeff Herre** is one of their analysts (just kidding, Jeff). **Bob Myatt** is the nursery manager for Western Field Service, Inc. in Boulder, Colorado. That's with plants, not kids. K. C. Brown, who left us after freshman year, is an army officer currently stationed in Berlin after tours of Vietnam and Fort Benning. **Ricky** and **Karen Weiss** are farming and teaching in South Woodbury, Vermont. **Bob Phelps** seems to be running most of the cable TV network in New England, and **Dave Hubbard** is an attorney with the International Playtex Corporation in New York."

A letter from **Roger Egan** from the Ore House Restaurant, Sun Valley, Idaho tells us that Roger is now managing the restaurant and he says that although restauranting is his main occupation, he stays alive in the field of geology: he also teaches a 4-credit freshman geology course for Idaho State University.

Phil Johnson is still teaching at the Bancroft School, planning to build a new house, and is enrolled in an M.S. program at WPI, this time in computer science. **Larry Abbott** is a law clerk for the Vermont Supreme Court; **Frank Adshead** is now a dentist living in Cumberland Center, Maine and has two children, Christopher and Erica: **L. Conrad Ambrette** was married in October, 1974 and is an attorney in New Canaan, Ct. for McAnerney, Ryan & Millar; **Judy Goodrich Arvold**, as you know, has her own medical practice and now has a daughter, Virginia Hall. **Cynthia Camp Barker** is a computer programmer and systems analyst for Colorado Blue Cross/Blue Shield, living in Arvadon, Colorado; **Jim Barnes** is now a community development representative for the U. S. Department of Housing and Urban Development in Milwaukee; **Cynthia Krieble Bennett** obviously made it through grad school at Stanford because she is now assistant professor at Central Washington State College and living in Ellensburg, Washington; **Barbara Barrett Bloom** is also a teacher; she is working at the Colchester Jr. High School and living in Burlington, Vt.; **Ken Blount** lives in Westport, Conn. and is director of industrial relations for the Epco Hospital Supply Corp.; **Susan Gallagher Borg**, who has a son, Kelley, is director of the Quarry Hill Nursery School; **Louis Spencer Bredehorn** is a self-employed writer. **Peter D. Broughton** works for E-B Industries as manager of distribution and central services and lives in Simsbury, Vt. He has two children, Bryce and Brook; **Ann Draper Brown** lives in Brunswick, Maine. At the time she sent in her card she was on a leave-of-absence from teaching English. Why? A baby girl named Gabriel, of course! Another Brown, **Daniel Brown** that is, lives in Cincinnati and is vice president of the Brockton Trimming Co.



Peter Marks '66 receives Ecological Society Award

Alfred Jaretzki is living in New York City and doing a little of everything. He teaches tennis, models, does some television work, and has begun a theatrical career. Al is living at 341 East 82nd St., N. Y. C. 10028. Another New Yorker is **William Salzillo** who has progressed from graduate studies in Art to his own sculpture exhibit: we received an announcement from the 14 Sculptors Gallery in New York that he had a one-man show in late January.

From Lawrence, Mass. we hear that **Jeff Riotte** has become a senior planner for the Merrimack Valley Planning Commission. He has had several years of related experience, including work as a staff associate at the University of Massachusetts Department of Landscape Architecture and Regional Planning; **Lawrence Raab** is also in the Commonwealth, teaching English at Williams College. Where's that?

Larry and **Susan Roush Bruce** are living in St. Albans, Vermont 05478 where Larry is an attorney with Tyler and Bruce. Their little boy, Duncan, is now almost three years old. **Joanne** and **Clifford Buikema** are now in St. Paul, Minnesota where Cliff is an architect for Parker Klein Associates. Their address: 1427 Eleanor Avenue, St. Paul 55116. Space won't allow us to bring all of your news—touch base again in the Summer Issue.

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Christy A. Hitchens writes that she is now ensconced amid piles of business cases at the Harvard Business School and working hard for an MBA, class of 1977. She would love to hear from any alumni in the area and to talk to anyone thinking of applying to H.B.S. for the future. Nice to hear from you, Christy. Her address: Chase C-33, Harvard Business School, Soldiers Field, Boston, Ma. 02163. And a letter from **Pat Whitney Messler** tells us that she is working as coordinator of volunteer and information services for the Mental Health Services of Southeastern Vermont. Her husband, Dyke, is manager of the Old Tavern in Grafton, Vermont. The Messler's address is: Deer Run Farm, Grafton, Vt. 05146. We miss you in Middlebury, Pat! **Bill Morton** has been named an assistant vice president in the Money Market Center of the First National Bank of Boston. He joined the bank in 1972.

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Where are you all? We've heard from **Lasell Jaretzki** that she is living in San Francisco and was married on St. Valentine's day. And her new name? "I am Li Everbe rather than Mrs. Michael Sunu . . . in keeping with our particular and definite direction in life, we have selected individual names." Li is working for an organization called the Neworld Fair.

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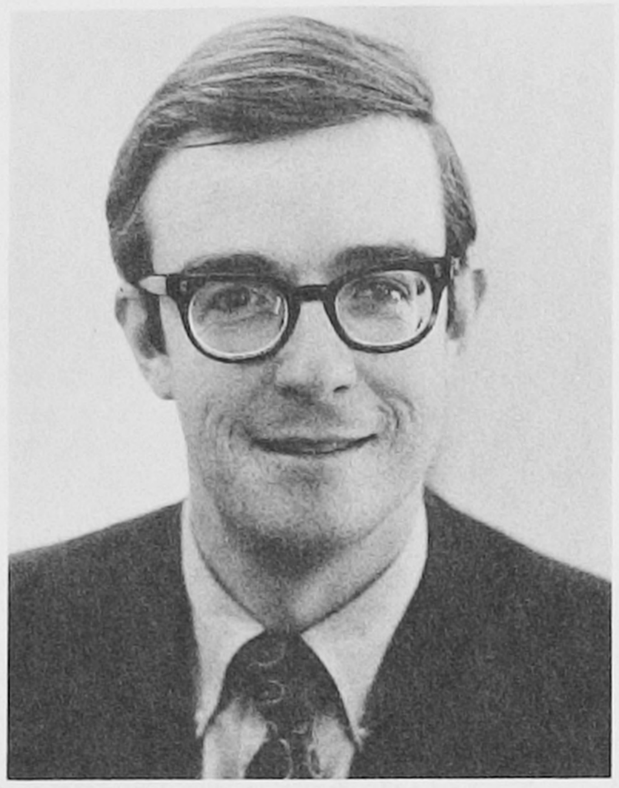
We've just received an update on **Dave Pierson** who was married in September of 1975. Dave left the Northwestern National Bank in 1973 and joined Kidder Peabody Inc. as a registered representative. Now he is with Loro Manufacturing in Blooming-

the British Empire while others, especially farmers, maintained their Dutch language, religion, and way of life.

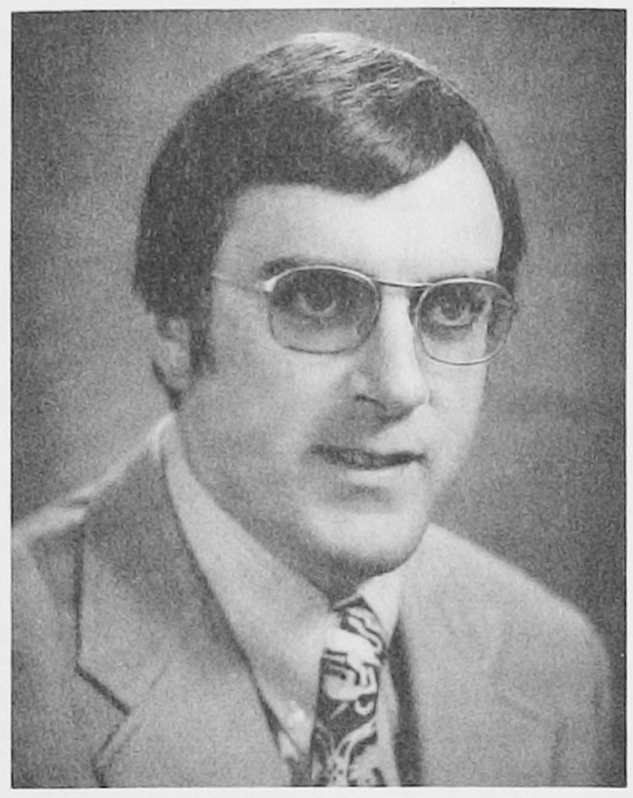
The Dutch grew impatient with British interference with their trade. They fought back invasions from both ends of the Hudson-Champlain Valley during the Revolutionary War and endured seven years of siege. Later the Dutch helped devise workable governments and contributed to the establishment of the national political-party system. Others helped to develop nationwide networks of transportation, communication, and finance.

Adrian Leiby '25 who reviewed the book for a special publication, writes "**Stubborn for Liberty** is a splendid book about the Dutch, filled with a mass of information reflecting Dr. Kenney's deep knowledge of the subject, all presented with extraordinary grace." Alice is associate professor of History at Cedar Crest College.

Are the rest of you operating under the assumption that no news is good news? Let's hear from you!



Pieter Schiller '60



Arthur Wilkes '61

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Robert H. Calef's new address is 232 Bellevue Rd., Watertown, Mass. 02172.

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From Morristown, N. J. we hear that **Pieter Schiller** is now treasurer of Allied Chemical Corporation. Pieter joined Allied Chemical in 1961 and served in a number of financial assignments before being named director of financial management development in 1968. He became director of corporate auditing in 1969, and was named assistant controller in 1972.

And from Central Valley, N. Y. **Dean A. Bernasconi** reports that this is his fifth year as a guidance counselor and his fourth in the Monroe-Woodbury Central School District.

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In Stamford, Conn. **Arthur E. Wilkes** is now a director of United States marketing for Xerox. His address: 17 Shorefront Park, S. Norwalk, Ct. 06854. And in Vermont, **Munro Brook** is the new youth agent for Addison County and lives in Vergennes (RD #2, Box 242).

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A local Vermont newspaper last January said that "everytime **Stephen Green** of Berlin, Vt. writes up an official report, it seems to put someone in hot water—and in a relatively big way." Steve has pursued his penchant for travel and for helping others ever since he graduated from Middlebury (the Peace Corps in French West Africa for two years; two years in the Philippines with UNICEF; Executive Secretary for Vermont's Council on Aging, and on and on). While in the Peace Corps, Steve investigated rumors of people dying of starvation and cholera in Northern Ethiopia, and did what he apparently does best—he wrote a report which was apparently so hot both his own employer and the Government of Ethiopia tried to hush it up. The Ethiopian famine cover-up is now a subject of news articles and a recent report issued by the Carnegie Endowment for International Peace. Steve's story on the affair appeared in a New York Times Sunday edition last January. He is now contemplating a stint at the U. S. State Department to work on disaster relief programs.

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A note from **Carolyn Foster Broadbent** tells us that she and husband Tom are now living in Tallahassee (2078 Florida Avenue 32303) where Carolyn is fixing up an old home they bought plus taking a graduate Art History course at Florida State. Tom is now working as an internal auditor for the state's Department of Health and Rehabilitative Services. And **John Flynn** has been elected vice president-Law for Tiger International Inc. headquartered in Los Angeles. Tiger International is the parent company of Flying Tiger Line, the world's largest all-cargo airline, and Tiger Leasing Group, an international equipment leasing and financing organization.

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Walter Weld is now a loan officer in the retail banking division of the First National Bank of Boston. He joined the bank in 1968 and was made a branch manager in 1973.

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The William Penn Charter School in Philadelphia, Pa. will have a new headmaster this July: **Earl J. Ball**. Earl will be taking the helm of the coed country day school, leaving his present position as assistant headmaster of the Park School of Baltimore. Earl is a doctoral candidate at the University of Pennsylvania, having received his MAT from Johns Hopkins in 1966. **Walter A. I. Wilson**, a lawyer formerly with the office of General Counsel, The Renegotiation Board, has now taken a position with the law firm, Hudson, Creyke, Koehler & Tacke in Washington, D. C.

The annual Bank Investments Conference of the American Bankers Association in New York had **Willard R. Nalchajian** as one of its speakers on bank investments. Hal is an investment officer of the Chittenden Trust Co. in Vermont.

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Peter L. Marks who is assistant professor of ecology and systematics in the division of Biological Sciences at Cornell University has received the George Mercer Award of the Ecological Society of America. The annual award is considered the highest recognition for excellence in ecological research, and is made for the year's outstanding publication of ecological research. The award was made for Peter's studies of the role of various tree species in maintaining the stability of northern hardwood forests.

Peter Ruschp is now director of the Stowe Ski School. (In 1964 he was named the All-American Collegiate Alpine Skier of the Year and in 1966 was a member of the U. S. Alpine Ski Team.) Peter will be responsible for overall management of the Ski School founded by his father, Sepp Ruschp in 1936. **Jack Metee** popped up in the news last February when he lectured in New Hampshire on ecological planning. Jack received his graduate degree in Regional Planning from the University of Pennsylvania.

Nancy Taylor Stonington lives in Ketchum, Idaho (Box 837) but she spends much of her time in the wilderness, painting: "From Vermont to Alaska, I paint the places I know and the things I love," she writes. "I have a special love for Southeast Alaska . . . its character and mood are found nowhere else in the U. S. and the misty landscapes are ideally suited to the watercolor medium. It was in Sitka, Alaska that I determined to become a full-time watercolorist after eight years of off-and-on cartography, drafting, and scientific illustration. I have had no formal training in art." In a relatively short time, Nancy has made quite a mark: Her watercolors have been so outstanding that they were featured in the Winter 1975 issue of the **Alaska Journal**, a quarterly devoted to the history and arts of the North. Her paintings now hang in the Alaska State Museum and in private collections across the country. One art gallery in Alaska predicts that within ten years Nancy will be one of the Northwest's best-known watercolorists.

The new address for class secretary, **Kenneth Macauley**: Grasshopper Lane, Kennebunk, Maine 04043.

This exceptional photograph of the aurora borealis above the College observatory was taken on February 28th by senior Eric Lifgren, from Goldens Bridge, N.Y. Data: 30-second exposure at f 2.8, on Tri-X exposed at ASA1600 and developed in Diafine. Eric used a 28mm wide-angle Nikkor lens.

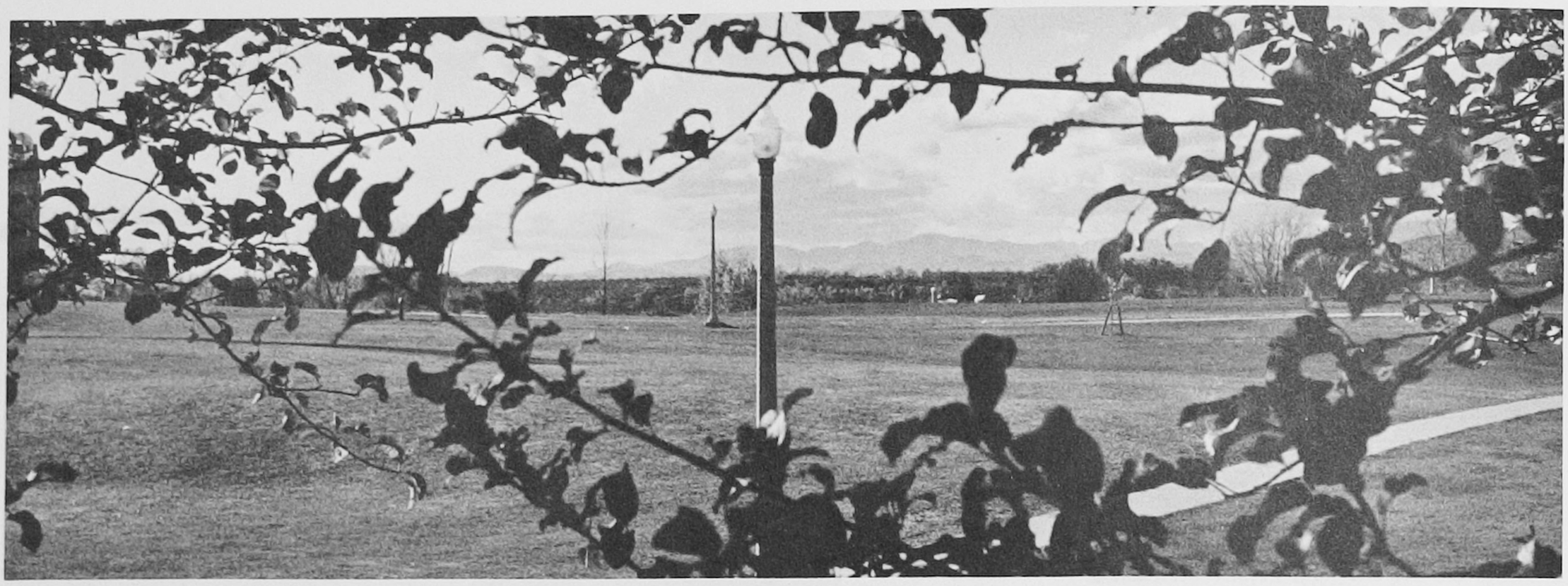
From the Editor, Goodbye and Thanks

Curtain speeches are a bore but your editor can't depart without three fast tips of the hat. First, to Walter Brooker '37, vp for development, who pointed me to the editor's desk eight years ago and then left me there: not only did he never interfere with the editor's decisions (despite occasional temptation, no doubt), he also was quick to praise and always generous with his encouragement. Happily we were in full agreement that the News Letter, although an instrument of college development, was never to become a house organ—that it should tell the truth, should never ask for money, and should try to inform and entertain its readers—conveying the flavor of Middlebury's hopes and deeds, without the repetitive minutiae.

None of this could have worked, of course, without the tacit support of the president: although Dr. Armstrong also had reservations occasionally, he steadfastly refused to intervene. For this unusual freedom any editor would feel grateful, and we do.

Finally, a sincere flourish of the fedora to all of our readers whose occasional letters of encouragement have shown that they understood what we were trying to do, and appreciated it. This is the real psychic pay of the editor's job and to the many generous readers who've helped, we say, "Thank you." It's been fun working for you.

Gregor Hileman



ton, Minnesota as a consumer salesman, and thinking of going on to graduate school in business administration. Maybe he should join classmate **Grove G. Nichols** who is at Stanford in Business Administration. Or perhaps **Jane C. Linder** at the Harvard Business School. Jane was awarded First-Year Honors for her outstanding academic performance at Harvard. From Canada we hear that **Neil Anthony Sharkey** received his LLB in the Fall of 1975 from the University of Saskatchewan.

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Judy Cranker MacPherson has been elected to the Berkshire (Mass.) Regional School Committee. She received her Master's degree from the University of Massachusetts and has taught for four years in the Pittsfield school system. A teacher of a different sort is **Robert W. Swinston**, who is an instructor in the speech and theater department at Montclair State College, Upper Montclair, N. J. Robert is quite an accomplished dancer. During 1974 he was involved in the Martha Graham Apprentice Dance Program. In 1973 he danced with the Pittsburgh Light Opera Association. He is now a member of the Kazuko Hirabayashi Dance Theatre in New York City and this company has taken him to England and last November to the Paris Festival. Best wishes go to classmate **Penny Guy Morgan** who was married on October 4th to Sam. Penny and Sam are now living in Providence, Rhode Island (842 Hope St.) and both are working for the Industrial National Bank. Newly married **Virginia Clark Potter** is working on her master's in musicology at Boston University. Her address is: 19 Egerton Rd., Arlington, Mass. 02174.

Madeline Phu Dung, who was married to Li Pin Tsung on March 29, 1975 in Taiwan, is teaching French at the Catholic University there, and also at the European Languages Center. French books and dictionaries are non-existent. She would very much appreciate even a few. Or any mail! Her address is: Mrs. Li Pin Tsung 3rd Floor #9 Alley 10 Lane 223, Chung Hsiao East Road—Section 4, Taipei, Taiwan R.O.C.

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Did **Ron Ezekian** get to the Winter Olympics?? He was closer than most of us, living in Vienna and working as a systems engineer for the IBM World Trade Corporation. His address is Paradisgasse 26/1/5, A-1190 Vienna, Austria. **Guy Kettelhack** has hopped from Essex Junction to Bread Loaf to New York. During 1974-75 he was string teacher and orchestra conductor at the Essex Junction Public School; he has been at Bread Loaf for the past two summers; and is now working for the Harold Ober Literary Agency in New York. For Peace Corps volunteer **Richard Fisher**, language has opened the door of friendship and successful working relationships with the Indians in Guatemala. Most Indians there speak Cakchiquel, a complex guttural language and Richard spent two months, six hours a day, learning it. Richard works as an agricultural extension agent. He shows members of farming cooperatives near the town of Solola how to use fertilizers and insecticides, and teaches techniques of crop rotation and diversification, composting, and conservation. We are relieved that Richard is safe after the tremendous earthquakes in Guatemala in January. Another Peace Corps volunteer is **Paul Slocum** known to us as "Link." He is in Gabon (Central Africa) on a school-construction project, managed a leave in January and journeyed north and west to Timbuktu. **Molly McKitterick** can be found in Louisville, Kentucky at 2316 Grinstead Drive, Apt. 3. If you don't find her at home, try Station WLKY-TV where she is working as a reporter. And **Randy Wolf** asks "if Middlebury still keeps tabs on its alumni?" Of course we do and the more news the better! . . . Randy is now a process engineer working for CF Brown, an engineering and construction firm near Los Angeles (last summer he completed his course work for the MS in chemical engineering at Penn State). His address: 401 E. Live Oak, San Gabriel, California 91776.

Bob McGirr left Woods Hole Oceanographic Institute last August and in September entered the Master's degree program in Earth Sciences at Dartmouth. He expects to receive his degree in June, 1977.

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If you want to eat your heart out for the sun and the surf, just listen to the news from **Janet Higbee**! Her address: The Buccaneer and the Buccaneer Beach Hotel, P.O. Box 218, Christiansted, St. Croix, U. S. Virgin Islands 00820. Need we say more? She is "doing a bit of virtually everything, trying to learn about every different department (in the hotel business)." Quite a switch from hospital work, Janet. A little closer to home is **Diane Fordon**, who teaches French and Remedial Reading at the Stowe School in Stowe, Vermont. Two of our classmates are still students: **Barbara Burchenal** will complete her MAT this year at Brown and will then be eligible for secondary-school teaching certification. And, our very own **Robert Huck** has been awarded a Dr. Robert Carter Medical School Prize by Washington University School of Medicine. He received the award for scholastic performance during his freshman year of medical school. **Anne DuVivier** is working in the Illustrations Department of the National Geographic Society and is living at 3051 Idaho Ave., N.W. Apt. 419, Washington, D. C. 20016.

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We've heard from four more classmates since our long column in the Winter issue: these four are in Boston, where **Susan P. Storer** is a computer programmer for the John Hancock Mutual Life Insurance Company; in Rupert, Vermont where **Wendy Walsh** is the educational environmental coordinator for the Merck Forest Foundation; in Dobbs Ferry, N. Y. where **Caroline Donnan** is working at the Masters School as house advisor, academic advisor, chairman of voluntary service program, and asst. coordinator of the ethics symposium; and in Bahrain on the Arabian Gulf, where **George Szontagh** is serving as a well-logging engineer in the oil exploration field. And remember **Jeffrey Andrew Goldes** who was with our class as a Freshman? He transferred to the University of Minnesota College of Biology Sciences, in Zoology and is currently attending the Boston University School of Medicine: Box 277, Boston University School of Medicine, 80 E. Concord Street, Boston 02146.

Just heard from **Debbie Francisco** that as of October 25, 1975 she became Mrs. Samuel McDowell. They were married by Chaplain Scott in Mead Chapel and have made their home in Burlington, Vt. "Sandy" is still in graduate school at UVM in the Department of Communications and will finish this June. Debbie writes, "Right now, I'm playing the part of 'Domestic Engineer' while scouting around for a job."

Middlebury

COLLEGE NEWS LETTER

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